Report of the Federal/Provincial/Territorial Family Law Committee

THE FINANCIAL IMPLICATIONS OF CHILD SUPPORT GUIDELINES

EXECUTIVE SUMMARY

May, 1992

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EXECUTIVE SUMMARY

INTRODUCTION

In June 1990, the Child Support Project was announced by the federal, provincial and territorial ministers responsible for Justice. The federal/provincial/territorial Family Law Committee was given the mandate to study the issue of child support upon family breakdown in the context of actual costs of raising children in Canada.

In June 1991, the Child Support: Public Discussion Paper was released by the Family Law Committee. The Paper discussed current problems with child support, different alternatives for reform, and sought the public's views and comments on a range of issues relating to child support.

One of the options for reform discussed was that of child support guidelines. Although different types of guidelines were briefly described for information purposes, readers were not asked to offer their opinions on a preferred approach. Rather, they were encouraged to await the production of this research report which would focus on the financial aspects of child support and child support guidelines in particular.

This research report presents the results of the economic studies conducted to determine average expenditures on children in Canada. The data obtained from these economic studies was then applied to various child support guidelines and the results analyzed. In addition, the current income tax system and the tax implications of child support guidelines are examined. We recommend that this Research Report be read in close conjunction with the earlier Discussion Paper.

1. THE ECONOMIC RESEARCH

There is strong evidence that the costs of raising children are often underestimated by the parties themselves, the lawyers and the judiciary. An important first step was therefore to determine the actual costs of raising children in Canada.

The Family Law Committee sought proposals from a number of economists in different parts of the country on how the costs of raising children should be estimated. Three proposals were received and all three suggested that the optimum approach would be to estimate national expenditures on children using the most reliable database in Canada; the Statistics Canada Family Expenditures Data Base (FAMEX). All three economists preferred this approach to one of attempting to estimate the cost of the basic needs of children. Although data estimating the basic needs of children would have been very useful, national data does not exist.[1] Given the costs of conducting such a study on a national basis, this approach was not seen as viable.

All three economists recognized that there is no perfect method of determining how much children cost. As a result, the approach chosen was to produce an estimate of average expenditures on children in intact families. One of the advantages of using an expenditure as opposed to a basic needs approach, is that it relates expenditures on children to the income levels of their parents. It also treats all children and families equally by purporting to allocate to all children the same percentage of parental income as the average children in an intact family would receive. However, some may have conceptual difficulties with this approach as a family which is no longer intact has neither combined income, nor combined expenses.

In relation to these issues, the reader is particularly referred to the June 1991 "Discussion Paper", more specifically on page 14 "Parental Income and Means - Needs of Children" and on page 39 "Extent and Limits of Child Support Guidelines: Advisory, Presumptive and Mandatory".

The Family Law Committee awarded a contract to each of three economists to estimate expenditures on children in Canada. Each economist recommended using a different economic model for estimating expenditures on children. The first chapter of the Research Report provides a detailed discussion of the four models selected by the economists.[2]

Briefly, the four models are the Extended Engel, Blackorby/Donaldson, Adult Goods, and Consumption.

1. Extended Engel Model

The Extended Engel Model assumes that households that spend the same proportion of their total budget on necessities are equally well-off (i.e., food, clothing, shelter and household operations excluding child care). The "cost of a child" is interpreted as the income required to restore a couple with a child to their pre-child level of well-being. This is accomplished by finding the incomes at which a household with a child devotes the same share of total income to necessities, as an identical household without children. The difference in their income levels reflects the cost of the child.

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[1] As well, it would be difficult to determine what elements should be included in the definition of "basic needs" of children.

[2] Mr. Martin Browning, Professor of Economics at MacMaster University recommended the application of the Consumption Model. Ms. Joanne Fedyck, Assistant Professor of Family Economics at the College of Home Economics at the University of Saskatchewan suggested using the Adult Goods Model. Finally, Ms. Shelley Phipps, Professor of Economics at Dalhousie University recommended two models, namely, the Extended Engel and the Blackorby/Donaldson. The complete reports may be obtained from the Department of Justice, Research Section, 222 Queen Street, 9th Floor, Ottawa, Ontario, K1A 0H8.

2. Blackorby/Donaldson Model

The Blackorby/Donaldson Model is based on the assumption that there is an important link between behaviour and need: information about behaviour will allow us to develop information about needs. As well, in this model it is assumed that household "well-being" can be described using an index defined in relation to a set of necessary goods. Children and adults within the same household are also assumed to share the same level of material well-being. The "cost of a child" is the additional income required to make each member of a household with two adults plus one child, as well-off as each member of a two-adult household without children.

3. Adult Goods Model

The Adult Goods Model is similar to the Engel and Blackorby/Donaldson Model in that it looks for a good or set of goods that can be used as an indicator of well-being. It then compares the incomes of households sharing the same indicator to determine the difference between the income of the household with children and that without. Instead of household spending on food or on necessities, however, the Adult Goods model focuses on what parents spend on themselves as an indicator of well-being.

4. Consumption Model

Finally, the Consumption Model is grounded in what economic theory calls the life cycle hypothesis. Instead of finding ways of comparing the "well-being" of families with and without children (like the Engel, Blackorby/Donaldson and Adult Goods Model), the objective of the Consumption Model is to follow the same household through its life cycle to see their expenditures change with changes in demographic structure. The difference between expenditures in periods with children and without children is taken to be the cost of the children.

Although four models were used to determine expenditures on children, the following common patterns emerged from the results:

1. A family's income level determines the level of its spending on children.

2. Expenditures on children increase with the level of family income. However, the increase is not necessarily in proportion to the income. In the Blackorby/ Donaldson model, there is a proportional difference between lower and higher income families that increases with the age of a child. It is suggested that this may be because such households have more possibilities for expenditure on older children. The Adult Goods model yields the opposite result. It suggests that upper income families spend more dollars but a smaller proportion of their income on children than do lower income families. In the Consumption model, there is no particular pattern to the proportion of income spent on children. For a family with one young child this proportion rises with income; for a family with an only child aged 12-18 it is more or less constant and for a family with two older children it falls with income.

3. All models suggest that expenditures on children increase with the number of children. However, expenditures do not increase proportionately. In other words, there are economies of scale realized in having larger families. In the Adult Goods model for example, upper income families spend 30-35 per cent less on a second child than on the first, about 50 per cent less on the third than on the second, and an additional 50 per cent less on the fourth than on the third.

4. The economic models revealed only slight regional variations in the overall levels of expenditures on children. According to the Adult Goods model, families living in Alberta spend the most on their children, both in terms of dollars spent and as a percentage of income. According to the Consumption model, the region of residence has a slight impact on expenditures on children. Finally, according to Blackorby/Donaldson and Extended Engel models, the level of urbanization and region of residence does not affect the proportion of income spent on children. However, in actual dollars, families living in Ontario spend more on their children than families living in the Atlantic provinces due to the difference in the average income of parents in these two regions.

The following chart compares the average percentage of gross income spent on children by number of children in the family, in all income categories as estimated using each of the models. It must be noted that day care costs and income tax implications are not included in the estimates provided by the economists.

EXPENDITURES ON CHILDREN BY AVERAGE PERCENTAGE OF GROSS INCOME, ECONOMIC MODEL AND NUMBER OF CHILDREN

	Extended Engel	Blackorby/Donaldson	Adult Goods	Consumption
1 child	7.21	15.23	9.51	6.94
2 children	9.85	21.05	14.35	10.35
3 children	12.30	25.75	17.79	14.33
4 children	14.58	29.53	20.41	17.96

2. CHILD SUPPORT GUIDELINES

The second chapter provides a brief description of seven child support guidelines and demonstrates, using six specific fact scenarios, how these guidelines operate when combined with the different economic models. Approximate child care costs and income tax implications are also considered within these scenarios.[3]

The selected child support guidelines are:

Income-Shares
Income-Shares with Reserve
Delaware-Melson
Flat Percentage
Flat Percentage with Reserve
Australian
Income Equalization

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[3] Due to the deductibility of child care costs, in the scenarios, these costs are added after the income tax calculation.

It is important to note that the amounts chosen for the various components of the guidelines were selected for illustration purposes only. For example, for the purposes of some of the guidelines, an amount had to be chosen for the parental self-support reserve which is a basic amount parents are allowed before they are required to pay child support. Should guidelines, in fact, be implemented, different amounts could be selected based on the results of the consultation process.

3. EVALUATION OF ECONOMIC MODELS AND DIFFERENT CHILD SUPPORT GUIDELINES

Chapter three examines the strengths and weaknesses of the different economic models for determining expenditures on children and indicates how these amounts would be applied within child support guidelines. The analysis was based on simulations performed on the four economic models, in combination with the various child support guidelines, using selected family income levels. The tax implications and child care expenses were not considered in the economic models in order to allow us to determine the effect of the tax and child care expenses on a case by case basis. Child care costs were also added after the application of the guideline for the following reasons: these costs are much higher in the early years, they can easily be established and they vary considerably from family to family. The results of the economic models and different guidelines were evaluated with reference to the general objectives of child support as developed by the Family Law Committee.[4]

The evaluation criteria were as follows:

1) Consistency: whether there are dramatic increases in child support payments with only slight increases in the total gross incomes;

2) Robustness: whether the model or guideline can accommodate a wide spectrum of combinations of incomes and children;

3) Absence of extreme values: whether the results contain extremes or not, and if extreme results are obtained, are they unreliable.

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[4] These objectives were to: yield adequate and equitable levels of child support; produce amounts which are objectively determinable, consistent and predictable; ensure flexibility to account for a variety of circumstances (determined by looking at the consistency, the robustness and the absence of extreme values); and, be understandable and inexpensive to administer (determined by looking at the simplicity of the model or guideline and the amount of data required).

A. Economic Models

The results of the evaluation of the economic models can be summarized as follows:

(i) The Extended Engel Model:

The estimated expenditures generated by this model are the lowest of the four economic models. This is particularly true for families with large number of children. Overall, this model is simple, produces numbers which are consistent, robust and does not require additional amounts of data. However, this model often yields the lowest values.

(ii) The Adult Goods Model:

The expenditures on children using this model are the second highest of the four models. This model produces the highest child support awards for families with low family income but in high income families, this model produces the lowest child support awards where the number of children is small and particularly where the children are older. This model is simple, produces numbers which are consistent, robust and does not require additional amounts of data.

(iii) The Consumption Model:

Of the four economic models, the consumption model generally produces the second lowest expenditures on children and produces the lowest child support awards in low income families, particularly where the number of children is small. This model is simple, produces numbers which are consistent and does not require additional amounts of data. However, this model is not seen as being robust.

(iv) The Blackorby/Donaldson Model:

The estimated expenditures on children produced by this model are generally the highest of the four economic models. This is particularly true for families with high income. In cases where there are four children, the child support awards based on this model can be as high as 50 per cent of the gross income of the non-custodial parent. The high estimates arise mainly as a result of the apportioning of the housing costs since all members of the family are assumed to equally share the total housing costs. Overall, this model produces numbers which are consistent and robust. This model requires more data than is available in the FAMEX database and is theoretically complex.

B. The Different Child Support Guidelines

The analysis of the following child support guidelines did not take into consideration the tax implications or child care costs. The results can be summarized as follows:

(i) Income Shares

> *The basic principle behind the Income Shares Model is that a child should receive the same amount of parental income which he or she was receiving before the family breakdown in proportion to each parent's income.*

This guideline yields child support awards which are proportionate to the income of the two parents. It is straightforward and easy to explain. With the exception of the Flat Percentage Guideline, this calculation is the easiest to apply. Overall, this guideline is simple, consistent, robust, does not yield extreme values and does not require additional amounts of data.

(ii) The Income-Shares with Reserve:

> *The basic principle behind the Income Shares with Reserve Model is that a child should receive the same amount of parental income which he or she was receiving before the family breakdown in proportion to each parent's income after the deduction of a parental self-support reserve.*

This guideline yields child support awards similar to the Income Shares Guideline. The only difference is that the self support reserve allows both parents to cover their basic needs before paying child support. Therefore, the parent with the higher income will be responsible for a larger share of the expenditures on children than he or she would have under the simple Income Shares Model. As the amount of the self-support reserve increases, the parent with the higher income will pay a smaller percentage of the total child support award.

One concern relating to this guideline is that the percentages arrived at using the economic models are based on gross income and not income after the deduction of a parental self-support reserve. The amount of the child support award would not, therefore, correspond to the amount produced by the economic models. However, this guideline is consistent, robust and does not yield extreme values. This guideline is slightly more complicated than the Income Shares guideline and requires a determination of the value of the self support reserve.

(iii) The Delaware (Melson):

> *The formula ensures that the parent's and children's basic needs are met before the parents or the children are allowed to share in any remaining income.*

This guideline yields the highest child support awards. It combines two components in the awards: sharing the basic needs of the children and a specific percentage of parental income as a cost of living adjustment. If a high dollar amount is attributed to the child's basic needs, the child support awards can be higher than the total estimated expenditures on the children. This is because a percentage of the parental income is added to the child's basic needs.

Overall, this guideline is consistent but not robust, yielding extreme values, and does require additional information on the value of the self support reserve, the child's basic needs and the average percentage of gross family income spent on children. In addition, while this guideline may be theoretically sound, the additional steps make it slightly more complex.

(iv) The Flat Percentage guideline:

> *The established percentage for this model is determined by studies on expenditures on children, and it is assumed that both parents will spend the same percentage of their income on the children.*

This guideline will generally yield child support awards which are similar to those produced using the Income Shares guideline. Overall, this guideline is the most straightforward of all and is the easiest guideline to apply in terms of the amount of calculation required. It is also consistent, robust, does not yield extreme values and does not require additional amounts of data.

(v) Flat Percentage with Reserve guideline:

> *The established percentage for this model is determined by studies on expenditures on children, and it is assumed that both parents will spend the same percentage of their income on the children, after the deduction of a parental self-support reserve.*

This guideline will in most cases yield the second lowest child support awards. Overall, this guideline is consistent and robust. It is simple to apply although slightly more complicated than the Flat Percentage guideline. However, this guideline yields relatively low child support awards and requires additional information on the specific amount of the self support reserve. In addition, one concern relating to this guideline is that the percentages from the economic models are derived from gross income and consequently should be applied to gross income only and not to income after a deduction of a self-support reserve. As a result, the total amount for the child's needs as calculated using this guideline would be different from the results of the economic models.

(vi) Australian guidelines:

> *The establishment of child support awards in Australia is based upon the parents' incomes and the established percentages are determined as a result of research on family spending. Australia has developed six different child support formulae and the selection of the appropriate formula depends upon the financial circumstances of the family.*

For the purpose of our report, formula #3 was selected. This formula applies in cases where custodial parents' gross income is above average weekly earnings which are determined at $22,112 in 1991. This guideline will generally yield the lowest child support awards. If the income of the custodial parent is lower than $22,112, a different formula will apply and will yield results which are the same as the flat percentage with reserve guideline. If the custodial parent earns more than the non-custodial parent, the child support awards will be even lower. On the other hand, if the non-custodial parent earns more than the custodial parent, the child support awards will be similar to those produced under the Income Shares guidelines. This guideline is the most complicated of all, since it requires a choice to be made between different guidelines depending on the level of income of the custodial parent. In addition, this guideline is not robust (as it may occasionally yield negative child support awards). This guideline also requires more additional information than any other guideline.

(vii) The Income Equalization:

> *The basic principle underlying this model is that the child should suffer the least possible reduction in his or her standard of living as a consequence of the family breakdown. This is achieved by equalizing the standards of living of both custodial and non-custodial households.*

This guideline will yield the highest estimated support awards if the non-custodial parent has a higher income than the custodial parent. However, this is only true if the non-custodial parent does not have subsequent dependents. If the non-custodial parent has dependents, then the estimated awards may be much lower than under other guidelines. In some instances the awards may even assume negative values.

Overall the guideline is not simple and may be more difficult to explain. It is not consistent, as the calculated support awards vary widely with different income profiles. It is not robust, yielding extreme values, and it requires additional dollar information for the cost of living components.

4. INCOME TAX IMPLICATIONS

Income tax implications have a significant impact on child support awards. Chapter four presents a brief overview of the Canadian income tax system as it pertains to child support, the policy behind the system and the effects of such a system on child support payments.

The chapter describes how child support payments are deductible to the payor and must be included as income of the recipient. According to the Department of Finance, the policy behind such a system is based upon four major principles:

1. Where a deduction is received for a payment by the payor, the recipient should pay income tax on that payment.
2. Tax payers with similar incomes from different sources should pay the same amount of tax.
3. The tax assistance offered by the deduction may provide an incentive for the payer to make the payments.
4. The benefit of the tax subsidy to the payer should be passed onto the child in the form of higher support payments.

Different tax credits and deductions may apply to custodial parents depending on several factors. The following credits and deductions and the conditions for their application are discussed: the equivalent-to-married credit, the deduction of child care expenses, the refundable child tax credit, the refundable goods and services tax credit, the deduction of medical expenses for children and tuition and education credits.

The effects of the income tax system on child support awards are then discussed. In determining child support awards under the current system, taking the income tax implications into account is of utmost importance for the custodial parent and the child. Neither, the Divorce Act nor provincial and territorial legislation governing support specify how and when these tax implications should be calculated, or if and how the deduction should be shared between the parents in order to benefit the child.

Another issue which is raised is the requirement that custodial parents include the amount of support in their income and the strain this may cause for them when the amount was insufficient to start with. In some circumstances, the inclusion of support payments result in a change in a parent's marginal income tax rate. This may make a difference in the value of the support order and variation of the order may be justified. As well, where child support awards are determined by way of negotiations and settlements, there may be no way to ensure that the custodial parent is compensated for the income tax that he or she will have to pay on the amount received.

Finally, if child support guidelines are adopted, the income tax implications must be dealt with and proper income tax calculations must be effected. Direction should be given as to how to complete such calculations and how the benefit of the deduction should be shared in order to assist the child. However, such calculations may complicate the application of child support guidelines which sought to simplify the process of support determination as well as provide more fairness in child support awards.

The Family Law Committee hopes to receive comments on the two public discussion papers.

Readers may wish to comment only on the issues of substance which were raised in the Child Support: Public Discussion Paper released in June, 1991. On the other hand, readers may also choose to comment on the different economic models presented, on the different types of child support guidelines, on the effects of combining the different economic models with the different guidelines and on the income tax implications.

Written submissions may be sent to:

Child Support Project
Federal/Provincial/Territorial Family Law Committee
c/o Department of Justice
Room 758
239 Wellington Street
Ottawa, Ontario
K1A 0H8

and to your own provincial or territorial Attorney General's Department or Department of Justice.

Submissions should be received no later than October 11, 1992.

Report of the
Federal/Provincial/Territorial
Family Law Committee

THE FINANCIAL IMPLICATIONS OF CHILD SUPPORT GUIDELINES

RESEARCH REPORT

May, 1992

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Family Law Committee

THE FINANCIAL IMPLICATIONS OF CHILD SUPPORT GUIDELINES

RESEARCH REPORT

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THE FINANCIAL CONSEQUENCES OF CHILD SUPPORT GUIDELINES:

RESEARCH REPORT

In June 1990, the Child Support Project was announced by the federal, provincial, and territorial Ministers responsible for Justice. The federal/provincial/territorial Family Law Committee was given the mandate to study child support upon family breakdown in the context of the actual costs of raising children in Canada.

In June 1991, the Child Support: Public Discussion Paper was released by the Family Law Committee. The Discussion Paper dealt with the problems with child support, discussed different alternatives for reform, and sought the public's views and comments on the issues of substance relating to child support. One of the options for reform discussed was that of child support guidelines. Although different types of guidelines were briefly described, readers were not asked to immediately provide their opinions on the guideline models. Rather, they were encouraged to await the production of the research report.

This second report focuses solely on the financial and economic aspects of child support. This research report presents the results of several economic studies conducted to determine average expenditures on children in Canada and applies these results to different child support guidelines. Then, the application of the different guidelines to the economic models is analyzed. In addition, the current income tax system and the tax implications of child support guidelines are examined.

The first chapter presents a detailed summary of the economic studies which were commissioned by the Family Law Committee to determine a reasonable estimate of expenditures on children in Canada. These studies are an essential element of the project since the information they yield is an essential component contained in most guidelines.

The second chapter provides a brief description of selected child support guidelines and explains the choice (for purposes of illustration) of certain components of the guidelines. To aid in further understanding how guidelines would operate, a simulation of six particular scenarios, in different income categories, is also presented. The six scenarios illustrate the different possible results where various types of guidelines are combined with the different economic methodologies. The income tax implications are calculated and child care costs are then added. Due to the deductibility of child care costs they are added after the income tax calculations are effected.

Chapter three examines the strengths and weaknesses of the different economic models for determining expenditures on children and indicates how these amounts would be applied within child support guidelines. The analysis was based on simulations performed on the four economic models, in combination with the various child support guidelines, using selected family income levels. This analysis does not include the income tax implications and child care costs.

Finally, Chapter four presents a brief overview of the Canadian income tax system as it pertains to child support and explains the policy behind the system. Finally, this chapter raises some of the practical problems with the present system of taxation of child support in Canada.

During the course of this project, the Family Law Committee identified the need for information regarding current levels of child support in Canada. Existing research data on current child support awards was evaluated. The Committee was uneasy about considering data from the Divorce Act Evaluation[1] for a number of reasons: the evaluation was only conducted in four sites in Canada in 1986 and 1988, the levels were found to decrease in 1988 compared to 1986, and the intent of the evaluation was to evaluate the effectiveness of the Divorce Act and not to collect all relevant information relating to child support awards such as parental income levels.

The Family Law Committee decided to launch a study to gather new data on current levels of child support, for a period of three months, in selected court locations in Canada. The chosen sites are Toronto, Saint John, Vancouver, Edmonton, Calgary, Whitehorse and Yellowknife. There is a possibility that similar studies may be conducted in Québec in the following districts: Joliette, Richelieu, Arthabaska, St. Francois, Abitibi and Quebec City. The findings of this research, which should be available later in 1992, will assist the Committee in developing its recommendations regarding child support guidelines.

The Family Law Committee recommends that this Research Report be read in close conjunction with the earlier Discussion Paper.

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[1] Department of Justice, Bureau of Review, The Divorce Act Evaluation, Phase 11: Monitoring and Evaluation, May 1990, p. 81.

CHAPTER 1
ECONOMIC RESEARCH ON EXPENDITURES ON CHILDREN IN CANADA

Under the present system of determining child support, the burden of establishing the cost of a child falls upon the custodial parent. Because of the difficulties inherent in evaluating these costs, however, there is growing concern that the true costs of raising children are being seriously underestimated by the parents, by the lawyers, and by the judiciary.

The Family Law Committee asked a number of economists for suggestions on how to estimate the costs of raising children in Canada. Three proposals were received from three economists.[1] All three proposed to examine average national expenditures on children in two parent families instead of attempting to estimate the basic needs of children. The approach proposed by the three economists has the advantage of relating levels of expenditures on children to family income levels, a procedure which may yield results which compare better with the actual amount children received before the family breakup than any attempt to assess the basic needs of children. Furthermore, since this approach includes the total family spending on the child it is different from a basic needs approach which does not consider the family's discretionary spending on the child. A study on basic needs could have been of some use and interesting to our project. However national data on basic needs of children does not exist in Canada. Given the costs of conducting such a study on a national basis, this approach was not viable. As well, it would be difficult to determine what elements should be included in the definition of "basic needs" of children. Furthermore, such a study would have delayed our project by a number of years. The proposed approach is also compatible with the most reliable data in Canada; the Statistics Canada Family Expenditure Data Base (FAMEX).

Almost all parents would agree that they divert a sizable portion of their income to raising a child. However, most parents would not be able to say exactly how much they spend per year on raising their child. The real costs of raising a child go beyond what is visibly and directly spent on food, clothing or education. There are also hidden costs associated with items that will be used more extensively because there are children in the household.

Spending on transportation offers a good example of this difficulty. Parents would probably own a car even if they had no children. The presence of children however, may increase the amount that automobiles are used and, therefore, may add to the family's transportion costs. A family may even have to purchase a larger car due to an increasing number of children. It is not easy, however, to determine precisely how much extra spending on transportation may stem from the presence of children.

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[1] The three economists are: Martin Browning, Professor of Economics at MacMaster University; Ms. Joanne Fedyck, Assistant Professor of Family Economics at the College of Home Economics at the University of Saskatchewan; and Ms. Shelley Phipps, Professor of Economics at Dalhousie University.

Economists have spent considerable efforts trying to devise methods for estimating the costs of raising children. In fact, the economic literature in this area is very large and to a lay person, generally confusing. Nonetheless, one fact stands out with clarity: economists disagree on what constitutes the most accurate statistical method for assessing child costs.

The various methods used to estimate the costs associated with children all try to address one of the following two questions:

1) How much extra income is needed by a family with children in order for it to be as well off (enjoy the same standard of living) as a family with no children? This extra income is then identified as the cost of the child. This question has been identified in the literature as an "iso-welfare" question.

2) How much do parents spend on their children? This question has been identified as the "expenditure or costing approach."[2]

Although the two questions appear to be conceptually straightforward, they each require access to very different data. And they produce answers that are very different.

Estimates on how much is spent on children is crucial to the development of child support guidelines. As part of the policy development process in this area, a thorough review of the recent literature was completed, including the recent work by Douthitt and Fedyk (The Cost of Raising Children in Canada, Butterworths, 1990).

In addition, the Department of Justice provided a contribution to a group composed of economists, an accountant and a sociologist, to produce an independent review of the literature and study the suitability of various economic methods for estimating expenditures on children in Canada. The report contains two very different conclusions regarding economic modelling and the best way of measuring the costs of children. This came about because the participants brought to the project two fundamentally different views of how to approach the problem of estimating child expenditures. Because of these differences, and the time required to complete the study, the results of their work have not been included in this document. During the consultation process, the Family Law Committee will examine the report and their findings.

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[2] For a discussion of the distinction between the "costs" approach and the "same welfare" approach see Martin Browning, "Children and Household Behaviour", *Journal of Economic Literature* (forthcoming).

As well, three economists Martin Browning, Joanne Fedyk and Shelley Phipps received contracts by the Family Law Committee to complete the following tasks:

1) review the economic models for estimating expenditures on children;

2) identify the strengths and weaknesses of each model;

3) suggest the most appropriate approach; and

4) apply the selected model using the Family Expenditure Survey (FAMEX) data supplied by Statistics Canada.[3]

Copies of the complete studies are available upon request from the Department of Justice.

There may be criticism that the FAMEX data is inadequate as a source for deriving reliable estimates of spending on children in Canada. However, because this is the only national data base in Canada containing spending data, the economists had no choice but to use it. As well, the economists recognized the inherent limitations of each of the economic models. This being said, the economists provided us with the best information available. The following is a summary of the results of the research completed by the three economists.

The Evidence

Statistics Canada conducts its Family Expenditure Survey (FAMEX) every two years. The data collected includes detailed expenditure information gathered from a random sample of more than 10,000 Canadian households. The most recent survey available is based on expenditures for 1986. Statistics Canada has released a public use data tape containing an aggregated version of the data. The public use tape for the 1986 FAMEX Survey is the basis for the four models examined in this study.

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[3] Mr. Martin Browning, Professor of Economics at MacMaster University recommended the application of the Consumption Model. Ms. Joanne Fedyk, Assistant Professor of Family Economics at the College of Home Economics at the University of Saskatchewan suggested using the Adult Goods Model. Finally, Ms. Shelley Phipps, Professor of Economics at Dalhousie University recommended two methodologies, namely, the Extended Engel and the Blackorby/Donaldson. The complete reports may be obtained from the Department of Justice, Research Section, 222 Queen Street, 9th Floor, Ottawa, Ontario, K1A 0H8.

The Family Expenditure Survey uses a sample drawn from the Labour Force Survey. The sample represents persons living in private households in the ten Canadian provinces. Residents of the Yukon and Northwest Territories, of Indian Reserves and patients and inmates living full-time in collective institutions (senior citizens homes, hospitals, prisons) are excluded.

Data were collected during at least one and frequently more than one personal interview. Respondents were asked to recall expenditures during the previous calendar year. Repeat visits were often made due to the need for respondents to consult records. The basic sample unit is a "spending unit" defined as a group of people dependent on a common or pooled income and living in the same dwelling, or one financially independent individual living alone. Never-married sons or daughters living with their parents are counted as part of their parents' spending unit. Spending units such as immigrant families who arrived during the survey year or an elderly individual who moved into an institution during the survey year are called 'part-year spending units' and are excluded from the data. Spending units which existed throughout the survey year but which experienced a change in household composition such as divorce or the birth of a child are included on the basic tape, which includes 10,356 observations.

In general, each of the economic models developed by the economists was applied to a sub-set of the data base. The purpose was to focus the study on families headed by two adults where the only other members were children under 18 years of age who were present on a year-round basis. The objective was to exclude all cases which might distort the results in some way. That meant, for example, excluding households containing relatives other than children or unrelated members. It also omitted single-parent households or families in which the parents were older than 65 or on some form of social assistance. Though the samples selected were similar, Table 1 highlights the various criteria used in the selection of the samples in the Extended Engel, Adult Goods, Consumption, and Blackorby/Donaldson Models. It is important to note, that expenditures on children in single parent families were also determined using the Blackorby/Donaldson and Extended Engel Models.

For the purposes of the Extended Engel and Blackorby/Donaldson Models, it was also necessary to estimate expenditures on children in single parent families. It should be added that each of the economists contracted to prepare estimates of expenditures on children agreed to exclude the costs of child care from their analysis. This spending category is one of the most visible and can easily be included separately in child support awards. In addition, it is likely that some families interviewed for the FAMEX survey may under-report spending on child care if the transactions involve cash or if the care is provided by relatives or friends for little or no compensation.

Table 1 **Comparison of Samples Selected for Estimates using the Extended Engel, Blackorby/Donaldson, Adult Goods, and Consumption Models**

Extended Engel and Blackorby/Donaldson Models*

- couples without children as well as couples living with their own never-married children (a separate estimate was made for couples with children);
- the children were less than eighteen years of age;
- the household head was less than 65 years of age;
- all members of the household were present all year;
- the household did not change from "renter" status to "home-owner" status or vice versa during the survey year;
- the household spent at least $100 on food and at least $100 on shelter.

Adult Goods Model

- families headed by two adults with only their own children, or no children present (single parent families are excluded);
- families with no adult children (aged 18 or older) living at home;
- families with both spouses less than 65 years of age, and those families who received no social assistance in 1986;
- families with all members present the entire year;
- families with a gross income greater than zero;
- the household did not change from "renter" status to "home-owner" status or vice versa during the survey year.

Consumption Model

- families headed by two adults with only their own children or no children present;
- families with no children 18 years of age or older living at home;
- husband is employed full-time;
- wife is either employed full time or not at all;
- families with all members present the entire year;
- families with a gross income greater than zero;
- the household did not change from "renter" status to "home-owner" status or vice versa during the survey year.

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* Under these two economic models, expenditures on children in single parent families were also determined.

1.1 Engel Model

One of the oldest ways of estimating child costs is the Engel model. It originated in observations made by the nineteenth century German economist Engel who noted that, all other things being equal, poorer households devote a larger share of their total budget to food than do richer households and that larger households devote a larger share of their total budget to food than do smaller ones. On the basis of such observations, Engel argued that the share of a household's budget devoted to food could serve as an indicator of well-being. A larger household, that is with one additional child, would devote the same proportion of expenditures on food as a smaller one when the two were equally well off. Households spending the same proportion of their total expenditures on food can be said to be equally well-off.

According to this reasoning, the cost of a child can be determined by estimating the extra income required to ensure that a family of two adults plus one child are spending the same share of the total budget on food as a childless couple. That cost of the child is the level of "compensation" required to restore the couple to their original level of well-being.

In implementing the basic Engel Model, data is used to determine how spending on food changes as the level of household income and other important household characteristics change. Once this relationship has been worked out and expressed in a formula, it becomes possible to calculate the incomes at which two different households, one with and one without a child, are devoting the same proportion of their budgets to food. The difference between these two incomes is then an estimate of the cost of the child.

1.1.1 Advantages

The Engel Model has several advantages in estimating the costs associated with children. First, it is both easy to apply and requires relatively less computer time than the Blackorby/Donaldson Model, factors that could be important for future updates. Second, the model yields more stable estimates than do some other models. This is a desirable attribute for estimates which will play an important role in the design of public policy. Third, the data requirements of the approach are easily satisfied by the Statistics Canada FAMEX survey. No supplementary price information is required. Fourth, the model may appeal to non-specialists inasmuch as it is applied in other instances such as estimates of low-income cut-offs (LICO) by Statistics Canada.

1.1.2 Limitations

Some have criticized the Engel premise that households spending equal shares on food are equally well-off. This is not, of course, a "testable" assumption. Its reasonableness must be judged by the reader. It is, however, empirically true that larger and/or poorer households devote a larger portion of the budget to food.

The assumption that spending on food is a reflection of well-being suggests that children have only income effects on their parents' consumption.[4] In other words, the addition of a child operates in the same way as a reduction in income and parents will spend proportionally less on everything they buy. It has been argued, however, that this is implausible. For example, parents are likely to find that the addition of a child increases the relative cost of eating out. In this case, we might expect parents to substitute other forms of consumption for restaurant meals instead of just buying fewer of them.

It has also been argued that the Engel Model over-states expenditures on a child.[5] A child's share of the food budget is larger than its share of most other goods.[6] In other words, the addition of a child to the household will increase spending on food relatively more than it will increase spending on other items. If food alone is used to measure welfare, a family's well-being may appear to fall substantially with the addition of a child and expenditures for this child will appear to be very high. If shelter were used as a yardstick instead of food, material well-being would not appear to drop nearly so much with the addition of a child and its estimated expenditures would be much smaller.

Finally, it should be noted that a key assumption of the Engel Model is that the proportion of income spent on children does not depend on income level. As a result, the estimates derived using this model yield proportions of gross income spent on children that are similar across income levels.

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[4] Deaton and Muellbauer (1980, pp. 193-195).

[5] Nicholson (1976) and Deaton and Muellbauer (1986).

[6] Nelson (1990) argues that Deaton and Muellbauer's point is made in the context of developing countries where children primarily are consumers of food. U.S. expenditure data suggest that children's share of food expenditures are only slightly higher than their share of over-all expenditures.

1.1.3 The Extended Engel Model

To meet criticisms that the Engel Model relies too much on food, the Extended Engel Model examines a bundle of necessary goods instead of simply food. Expenditure data can be employed to determine how spending on necessities such as food, clothing and shelter changes with the level of household income or with other important household characteristics such as the number and age of children.

The Extended Engel Model assumes that households that spend the same proportion of their total budget on necessities are equally well-off. Necessities are defined as food, clothing, shelter and household operations (excluding child-care costs). Thus, two households with different demographic composition and different incomes but spending 50 percent of income on food, clothing, shelter and household operations are assumed to be equally well-off.

1.1.4 Limitations

If we can find the incomes at which a household with a child devotes the same share of total income to necessities as an identical household without children, then the difference in their income levels reflects the expenditures on the child. This amount is often interpreted as the income required to restore a couple with a child to their pre-child level of well-being. The well-being of the child is ignored in the analysis and this is a serious disadvantage of standard Engel treatments, as it is of the Adult Goods and Consumption Models described below.

Both the basic and Extended Engel Model depend on creating a formula that relates various factors. For the purposes of this study, it was assumed that expenditures on necessities depend on the level of household income, the total number of children in the household, and the average age of children in the household. The formula was also tested for the influence of other variables such as region of residence, level of urbanization, age of family head, educational level of head and spouse, the weeks worked full-time by spouse, and housing tenure (i.e., home-owner or renter). The formula yielded by the analysis fits the data contained in FAMEX but it has to be admitted that there is no particular theoretical reason for choosing this specification. This "ad hoc" aspect of the Extended Engel Model is an important limitation.

1.1.5 Sample Selection

For the purposes of estimating expenditures on children using the Extended Engel Model, two sub-samples were drawn from the 1986 FAMEX tape. The first sub-sample is used to estimate expenditures on children by two-parent families; the second is used to estimate expenditures on children by one-parent families.

To estimate expenditures on children in two-parent families, the sample selected included couples without children as well as couples living with their own never-married children younger than eighteen years of age. The childless couples were used as the base from which to compare the expenditures of couples with children.

The following four criteria were used:

(1) Households with older heads were excluded on the grounds that elderly couples may exhibit a very different pattern of expenditures than younger couples with or without children.

(2) Households with some members present for only part of the survey year were excluded because reported annual expenditures for such households would not adequately represent the annual needs of full-year members.

(3) Households changing tenure were excluded since it is not possible to determine when the move was made and hence whether the household should be categorized as home-owners or as renters.

(4) Households with very low levels of expenditures were excluded on the grounds that such reported expenditures must reflect reporting error or "subsidization" in the form of free food and/or shelter from friends or family.

To estimate expenditures on children by one-parent households, a second sub-sample was selected including all single individuals with no children as well as all single-parent households. Again, the households without children were a base from which to compare the expenditures of households with children. Selected observations also satisfied the four criteria enumerated above.

The selected sub-sample of couples and couples with children contains 4,613 households which included from 2 to 7 members. The selected sub-sample of single individuals and single-parent households contains 2,023 households which included from 1 to 4 members.

Expenditure categories were defined as follows:

1. Food is expenditures on food for home consumption;
2. Clothing is expenditures on clothing for all household members excluding laundry and dry-cleaning expenses;
3. Shelter expenditures differ slightly for home-owners and renters. Shelter for renters includes rent plus expenditures on water, fuel and electricity if these are not included in rent. Shelter for home-owners includes expenditures on maintenance, repairs and replacements, condominium charges (if applicable), property taxes, homeowners' insurance premiums, mortgage interest, and expenditures on water, fuel and electricity;
4. Household operation includes expenditures on communications, domestic and custodial services, pet expenses, paper, plastic and foil supplies, horticultural goods and services, and other household supplies.

1.1.6 Extended Engel Results for Married-Couple Households[7]

From a statistical point of view, the Extended Engel Model yielded a formula that produced predictable results. About 48 percent of the variation in expenditures on necessities is explained by the model. This is quite high for a model of this type. In addition, there was a direct correlation between the variables selected for examination and household expenditures. In particular, the number of children and the mean age of each child are strongly significant.

The formula yielded by the Extended Engel Model allows for the creation of sets of values that can be used in calculating equivalent income levels and therefore the costs of children. An example of these is offered in Table 2 by way of illustration.

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[7] In the FAMEX database, common law couples are implicitly assumed to be married.

Table 2 Extended Engel Equivalence Scales. Estimates for Married-Couples and Married-Couples with Children Using Income Before Tax

	Average Age of the Child is Age = 3	Average Age of the Child is Age = 9	Average Age of the Child is Age = 15
Couple	1.0	1.0	1.0
Couple + 1 child	1.07	1.09	1.13
Couple + 2 children	1.11	1.13	1.17
Couple + 3 children	1.15	1.18	1.22
Couple + 4 children	1.20	1.23	1.27

To illustrate how Table 2 can be used, one can consider a childless couple that has an annual income of $40,000. A couple with one three-year-old child would require an income of $42,800 (1.07 x $40,000) in order for members of both households to be equally well-off in material terms. In other words, expenditures on the child at this income level is $42,800 minus $40,000 or $2,800.

If, on the other hand, the one child is aged nine, necessary expenditures will be somewhat higher. In this case, a couple with one nine-year-old will require $43,600 (1.09 x $40,000) to be as well-off materially as a childless couple with an annual income of $40,000. Thus, the expenditures on the nine-year-old child is $3,600.

Finally, the expenditures on a fifteen-year-old is higher still. A couple with one fifteen-year-old child will require $45,200 ($40,000 x 1.13) to be as well-off as the childless couple with annual income of $40,000. In this case, expenditures for the child are $5,200.

The equivalence scales in Table 2 can be used to calculate expenditures on children by a household at any income level. For example, suppose we observe a household with annual income of $38,000 consisting of a couple with one child aged nine years. The first step in calculating expenditures on the child is to estimate the income which would make a childless couple equally well-off in material terms. In this case, this is $38,000 x 1.09 or $34,862. The overall effect of the child on household expenditures would then be estimated as $38,000 - $34,682, or $3,318.

Table 2 also indicates that expenditures on children increase as the number of children in the household increases, though the magnitude of the increase depends on the average age of the children present. Thus, if a couple with one child aged nine years required $43,600 to be as well-off as a childless couple with annual income of $40,000, then a couple with two children with an average age of nine years requires an annual income of $45,200 to be as well-off as the childless couple. Child-associated expenditures increase from $3,600 for one nine-year old to $5,200 for two children with an average age of nine.

The number and age of children are the only variables which appear to exert an influence on the proportion of expenditures which can be attributed to children. Certainly the over-all level of household expenditures is affected by factors such as degree of urbanization or the region of residence. Households in Ontario may spend more than households in Atlantic Canada, but this does not mean that parents in Ontario devote a larger share of available resources to children than parents in Atlantic Canada.

1.1.7 Single-Parent Families

The Extended Engel Model was also applied to determine an estimate of expenditures on children in single-parent families. The results are summarized in Table 3 which can be used in the same way as Table 2, though the base against which single-parent families are compared in Table 3 are single individuals rather than childless couples.

Table 3 Extended Engel Equivalence Scales. Estimates for Single Parents and Single Parents with Children Using Income Before Tax

	Average Age of the Child is Age = 3	Average Age of the Child is Age = 9	Average Age of the Child is Age = 15
Single Parent	1.0	1.0	1.0
Single Parent + 1 child	1.15	1.18	1.25
Single Parent + 2 children	1.26	1.30	1.38
Single Parent + 3 children	1.39	1.44	1.53

The general trend represented by the Extended Engel results for single parents resemble those for married-couple households. The proportion of income devoted to a child increases as the average age of the child increases. The proportion of the budget attributable to children also increases as the number of children increases. And the results are similar regardless of whether pre-tax or post-tax income is used.

Even so, the equivalence scales for single parents are significantly higher than those reported for married-couple households. For example, while a single parent with one child aged three requires an annual income that is 15 percent higher than a single individual, a couple with one child aged three requires an annual income that is only 7 percent higher than that of a childless couple. A single parent with one child aged 15 requires 25 percent more than a single individual while a couple with one child aged 15 requires only 13 percent more than a childless couple.

Using the equivalence tables it is possible to calculate expenditures on children in two-parent and single-parent families. A single-parent household with an annual income of $25,000 and one child aged 3 years is estimated to spend $3,261 on the child. A single-parent household with an annual income of $35,000 and one child aged 3 years is estimated to spend $4,565 on the child.

This contrasts with the results obtained for married-couple households. A married-couple family with an annual income of $25,000 and one child aged 3 is estimated to spend $1,636 on the child; a married-couple family with an annual income of $35,000 and one child aged 3 is estimated to spend $2,290 on the child.

Thus, expenditures attributable to the child are higher in the single-parent household than the married-couple household, when the two households have the same annual income. This may be because the child is the second person in the single-parent household and the third person in the married-couple household. Fewer economies of scale in living together will be available to the smaller household.

These findings emphasize the fact that, if there are substantial economies of scale available to larger households, then the cost of providing the same standard of living in a smaller household, post-divorce, will be higher than in the original 'intact' household. It could be argued that child support payments which reflect expenditures on children in married-couple households may thus be too low.

1.2 Blackorby/Donaldson Model

The Blackorby/Donaldson Model is based on the assumption that there is an important link between behaviour and need: information about behaviour will allow us to develop information about needs. Thus, we can learn about the relative income needs of households by studying their observed spending behaviour.

The Blackorby/Donaldson Model also assumes that important demographic characteristics, such as the number of children, are primary influences on both behaviour and needs. If there is a systematic relationship between such demographic characteristics and the level of spending on a particular good, then it should be derivable from the data on expenditures.

Of course, a well-to-do family might spend more on clothing than a poor family, even if the poor family has more children. It is, therefore, necessary to look for patterns in the proportion of the budget devoted to a particular good. These patterns may be difficult to establish because so many influences operate simultaneously. For example, it might be true that residents of Ontario devote a larger share of their budget to shelter than do residents of Atlantic Canada. This would confuse attempts to sort out a possible systematic relationship between the number of children and expenditures on shelter. Econometric techniques, however, make it possible to isolate the influence of each household characteristic while holding the others constant.

In the Blackorby/Donaldson Model, it is assumed that household well-being can be described using an index defined in relation to a set of "necessary goods." As the household has more goods to consume, the index of well-being increases.

The index of household well-being is intended to reflect the extent to which each member of the household is materially well-off. Children and adults within the same household are assumed to share the same level of material well-being. This does not mean that each individual within the household is held to have the same tastes but rather that the household arranges consumption to make each member equally well-off.

Due to the assumed link between household behaviour and household need, observations about spending should help us formulate a mathematical expression describing the index of household well-being. The expression defining well-being will then influence the formulation of an expression describing expenditure behaviour. The expressions chosen to describe both well-being and spending behaviour must make sense and these requirements make the choice of the expression much less "ad hoc" than is the case for the Extended Engel Model.

Preliminary estimates provide a formula for the index of well-being as well as for the equations describing expenditure behaviour. The "expenditures on a child" can then be calculated, for example, as the additional income required to make each member of a household with two adults plus one child as well-off as each member of a two-adult household without children. That is, we can calculate for the incomes at which the value of the index of well-being is the same for both households.

1.2.1 Sample Selection

The four goods included in the Blackorby/Donaldson analysis are the same as in the Extended Engel Model: food, clothing, shelter and household operations. They are chosen because each is a major spending category, each plays an important role in determining material well-being, and each is a "flow" expenditure. In addition, inter-city price indices are available for these spending categories.

The analysis focuses on "flow" rather than "stock"[8] expenditures because it is more feasible to do so. Purchases of major durable goods are infrequent and spending on the item does not usually occur over as long a period of time as its consumption. This divergence between spending on the good and its enjoyment makes the analysis of durable goods extremely complicated.

Shelter is the one good included in this analysis which is not a "flow" expenditure for all households. Spending on shelter is a flow for renters but is not purely so for home-owners. Given the importance of housing to the material well-being of any household, however, it was judged necessary to include shelter expenditures in the analysis. To avoid the asset accumulation aspect of home ownership, only the expenditures of home-owners that might be viewed as flows are used. These include spending on maintenance, repairs and replacements, condominium charges (where applicable), property taxes, home insurance premiums, mortgage interest, and expenditures on water, fuel and electricity. For renters, shelter is more easily defined as expenditures on rent plus expenditures on water, fuel and electricity if these are not included in rent.

1.2.2 Key Assumptions

Spending patterns are assumed to be influenced by the number of children in the household and their average age. Expenditure patterns may also be affected by region of residence, the age of the household head, the educational level of head and spouse, the spouse's employment status and household tenure. Preliminary estimates were prepared in order to discover the nature of these relationships.

It is also assumed that there will be a systematic relationship between a household's observed pattern of expenditures on food, clothing, shelter or household operations and the relative prices of these goods. The impact of prices on household spending choices is a critical behavioural element that is over looked in the Extended Engel Model.

It should be added that one of the most important assumptions of the Blackorby/ Donaldson Model (as with the Extended Engel Model) is that the proportion of income spent on children does not depend on income level within low, medium and high income groups. For example, families within the low income group would be spending the same proportion of their income on their children. Some economists have suggested that this is the weakest point in the Blackorby/Donaldson Model.

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[8] "Flow" refers to actual expenditures on goods as they come into the household. "Stock" refers to the amount of a particular good in the household. The latter is almost never recorded in surveys.

1.2.3 Data Requirements

Since the Blackorby/Donaldson Model assumes that people will adjust their spending patterns as prices change, its data requirements are more stringent than those of the Extended Engel Model. It is necessary to use more than one year of data in order to obtain variation in observed expenditures across time and regions. It is also necessary to add price information to the basic data contained in the FAMEX Survey.

For the Blackorby/Donaldson analysis in this study, expenditure and demographic data were drawn from the 1978, 1982 and 1986 FAMEX Surveys. Sample selection followed the same criteria as were outlined for the Extended Engel Model. Again, a sub-sample of couples with and without children as well as a sub-sample of single individuals and single-parent households were generated. Very large households were omitted due to the small number of observations in these categories. Since three annual cross-sections were pooled, the resulting data sets were too large to be feasible for estimation. Instead, random samples of the eligible data were taken.

Since the Blackorby/Donaldson Model assumes that the proportion of a budget devoted to children is constant over limited income ranges, each data set was divided into three income groups: those with less than $30,000 annually, those with incomes between $30,000 and $60,000, and those with incomes above $60,000 (all in 1986 dollars). In addition, the entire analysis was also conducted using a sample containing observations from all income levels.

Price indices corresponding to each of the expenditure categories were calculated using data from Statistics Canada's Consumer Prices and Price Indices as well as data supplied by the Canada Mortgage and Housing Corporation (CMHC) and the Royal LePage Survey of Canadian House Prices - Spring 1986. Inter-city indices for food, clothing and household operations are published by Statistics Canada. Indices for 1978, 1982 and 1986 were then calculated using city-specific values for the Consumer Price Index (CPI) for each of the four expenditure categories. Since price indices were only available for 15 major Canadian cities, observations from a particular region were assigned the same price indices as the largest city within their region. As a result, prices are somewhat less accurate for residents of smaller urban and rural areas.

Since inter-city shelter indices are not available from Statistics Canada, alternative sources were employed to generate a price series. For renters, an inter-city shelter index was calculated using average 1981 rent for a one-bedroom apartment as provided by CMHC. For home-owners, data from the Royal LePage Survey of Canadian House Prices was used to generate a price series.

1.2.4 Advantages

The Blackorby/Donaldson Model has the advantage of a solid grounding in economic theory. A major conceptual improvement of the Blackorby/Donaldson Model over the Extended Engel Model is that the well-being of children counts equally with the well-being of adults.

1.2.5 Limitations

The disadvantages of the Blackorby/Donaldson Model are technical. The data requirements are more demanding than those used in other models. It is necessary to employ more than one cross-section of FAMEX data as well as price information which, in Canada, is not as complete as would be desirable. In addition, estimation is complicated and expensive in terms of computer time.

1.2.6 Blackorby/Donaldson Results for Married-Couple Households

The Blackorby/Donaldson Model yielded estimated "equivalence scales" for low, middle and high-income groups as well as for a combined sample of all income levels (see Table 4 on page 21).

Control variables included in the analysis were the age of the household head, education levels of head and spouse, spouse's employment status, region of residence and household tenure. Results indicated that these variables play an important role in the overall level and pattern of household spending.

As in the case of the Extended Engel Model, there does not appear to be any systematic relationship between any of these variables and the proportion of expenditures attributable to the presence of children. That is, for example, Prairie parents may have a different overall level of expenditures than parents in Atlantic Canada, but it does not appear that parents living in the Prairies devote a larger or smaller proportion of expenditures to children than parents in Atlantic Canada. Thus, reported results focus only on the income level of the household, the number of children in the household and the average age of these children.

According to the results summarized in Table 4, for low-income households, the ratio of income needed by couples with one three-year- old child to the income needed by childless couples (the equivalence scale) is 1.20 to 1. Thus the low-income household with the three-year old child requires $2,000 more per year than an otherwise similar childless couple with an annual income of $10,000, to make the members of each household equally well-off materially. A low-income household without children and an annual income of $20,000 would be materially as well-off as a household with one child aged three and an income of $24,000 per year.

For middle-income households, the ratio of income needed by couples with one child aged three to the income needed by childless couples is 1.18 to 1. Thus, a middle-income couple with one three-year-old would require $35,400 to be as well-off as a childless couple with $30,000. The spending associated with the child is $5,400.

Finally, for high-income households, the ratio of income needed by couples with one child aged three to the income needed by childless couples is 1.20 to 1. A high-income couple with one child aged three years would require $72,000 to be as well-off as a childless couple having an income of $60,000. In this case, the expenditure attributable to the child is $12,000.

Table 4 **Estimated Gross Equivalence Scales for Blackorby/Donaldson Model. (1986 dollars)**

Low-Income Couples (< $30,000 Gross)

	Average Age of Child is 3	Average Age of Child is 9	Average Age of Child is 15
Couple	1.0	1.0	1.0
Couple + 1 child	1.20	1.23	1.29
Couple + 2 children	1.38	1.42	1.49
Couple + 3 children	1.62	1.67	1.76
Couple + 4 children	1.92	1.98	2.10

Middle-Income Couples ($30,000 - $60,000 Gross)

	Average Age of Child is 3	Average Age of Child is 9	Average Age of Child is 15
Couple	1.0	1.0	1.0
Couple + 1 child	1.18	1.22	1.30
Couple + 2 children	1.32	1.37	1.48
Couple + 3 children	1.50	1.56	1.69
Couple + 4 children	1.72	1.80	1.95

High-Income Couples (> $60,000 Gross)

	Average Age of Child is 3	Average Age of Child is 9	Average Age of Child is 15
Couple	1.0	1.0	1.0
Couple + 1 child	1.20	1.25	1.35
Couple + 2 children	1.35	1.41	1.54
Couple + 3 children	1.54	1.62	1.77
Couple + 4 children	1.77	1.87	2.06

Full Sample (All Income Levels Gross)

	Average Age of Child is 3	Average Age of child is 9	Average Age of Child is 15
Couple	1.0	1.0	1.0
Couple + 1 child	1.14	1.16	1.20
Couple + 2 children	1.27	1.29	1.34
Couple + 3 children	1.42	1.45	1.51
Couple + 4 children	1.61	1.65	1.72

At all income levels, the proportion of expenditures attributable to children increases as the number of children in the household increases. For low-income households, the scale that compares the income needs of couples with two children with an average age of three years to the income needs of a childless couple is 1.38 to 1. For middle-income households, the scale is 1.32 to 1 and for high-income households, the scale is 1.35 to 1. Thus, in proportional terms, the extra income requirements of couples with young children relative to couples without children are roughly similar across the three broad income groups. Of course, the absolute dollar value of expenditures on children are much higher for higher-income households.

Table 4 also indicates that expenditures on children increase as a proportion of household income as children grow older. This is particularly apparent as the income level of the household increases. There is a larger divergence between estimated equivalence scales for the three income groups when we compare scales for older children. For example, a low-income couple with one child aged nine requires $12,300 to be as well-off as a childless couple with income of $10,000, a scale of 1.23 to 1. A middle-income couple with one child aged nine requires $36,600 to be as well-off as a childless couple with income of $30,000, a scale of 1.22 to 1. Finally, a high-income couple with one nine-year-old requires $75,000 to be as well-off as a childless couple with income of $60,000, a scale of 1.25 to 1.

Thus, at each income level, an older child involves higher expenditures. For low-income households, the scale changes from 1.20 to 1 for one child aged 3 to 1.23 to 1 for one child aged 9. For middle-income households, the scale increases from 1.18 to 1 for one child aged 3 to 1.22 to 1 for one child aged 9. Finally, for high-income households, the scale increases from 1.20 to 1 for one child aged 3 to 1.25 to 1 for one child aged 9.

This chapter has discussed the extra income needs of a household with children as compared to a household without children at a given income level for the childless household. It is also possible to use the scale in Table 4 to determine expenditures attributable to children by a household (with children) at a particular income level. For example, a household with two children with an average age of 9 years and a gross household income of $40,000 is estimated to allocate $10,803 to the children. This should not be interpreted as meaning that $10,803 is spent on children's clothes and toys. Rather, it means that all household expenses, including housing and heating costs as well as children's clothes and food can be expected to go up by $10,803 given the presence of children.

1.2.7 Single-Parent Families

The Blackorby/Donaldson Model was also applied to estimating the costs of children in single-parent families. It is interesting to note that in doing so, it was found that the average age of the child is statistically insignificant. Only the number of children present in the household exerts a significant influence on household needs.

The results are summarized in Table 5. Since average age of the child is statistically insignificant, scales vary only with number of children in the household. And, since there are so few single-parent households with more than three children present, scales are only presented for households with from one to three children.

Table 5 Blackorby/Donaldson Equivalence Scales. Estimates for Single Individuals and Single Parents with Children Using Income Before Tax

	Low Income	**Middle Income**	**All Income Groups (full sample)**
Single Individual	1.0	1.0	1.0
Parent + 1 child	1.33	1.32	1.36
Parent + 2 children	1.89	1.84	2.01
Parent + 3 children	2.84	2.71	3.16

As in the case of married-couple households, Blackorby/Donaldson estimates were obtained separately by income level as well as for the full sample, combining all income groups. However, for single-parent households, there were insufficient high-income (greater than $60,000) households to generate statistically reliable estimates. Thus, the sample was only divided into two income groups: less than $30,000 and $30,000-$60,000.

As in the case of two-parent households, scales increase as the number of children in the household increases. However, the scales estimated for single-parent households indicate that a larger increase in income is required with the addition of a child to the household than was the case for married-couple households. This finding was also evident for the Extended Engel estimates.

According to the Blackorby/Donaldson Model, for a single-parent household with an annual income of $25,000 expenditures and one child (regardless of age) are estimated to be $6,203. This contrasts with the results for married-couple households with an annual income of $25,000 which is estimated to spend $4,167 on one child aged three; $4,675 on one child aged 9; and $5,260 on one child aged 15. Thus, the point made in the context of the Extended Engel Model is again emphasized. The costs of a child are, therefore, greater to single parents than they are for two parent families.

Tables 1, 2, 3, and 4 allow for a quick comparison of the results achieved using the Extended Engel and Blackorby/Donaldson models. It is clear by looking at all income levels (full sample) that the Blackorby/Donaldson estimates are somewhat higher for every income level, age and number of children than those achieved using the Extended Engel Model.

1.3 The Adult Goods Model

The Adult Goods Model is similar to the Extended Engel and Blackorby/ Donaldson Model in that it looks for a good or set of goods that can be used as an indicator of well-being. It then compares the incomes of households sharing the same indicator to determine the difference between the income of the household with children and that without. Instead of household spending on food or on necessities, however, the Adult Goods Model focuses on what parents spend on themselves as an indicator of well-being.[9]

The Adult Goods Model is based on the view that if we knew how much parents spend on themselves it would be easy to calculate the amount they spend on children. In fact, the amount parents spend on themselves cannot be readily separated from total spending for the same reasons that child costs are not easily identifiable.

There are some classes of goods, however, which can be distinguished as purchased only for parental use. An obvious one is adult clothing which can be used as an indicator of total parental consumption and therefore well-being: parents and non-parents who spend equal amounts on adult clothing are held to be equally well off. By comparing the family income levels at which spending on clothing is the same, it is possible to estimate expenditures on children.

The procedure resembles that employed in the Extended Engel and Blackorby/ Donaldson Models. If a family with one child, and an income of $35,000, spends $3,000 on adult clothing, then we look at childless families to determine at what income level they also spend $3,000 on adult clothing. If childless couples with an income of $29,000 spend $3,000 on adult clothing, this implies that parents with a child are as well off as a couple with an income $6,000 less than theirs. Another way of expressing this is to say that the presence of the child has lowered overall parental consumption on all goods by $6,000. This figure then reflects the cost of the child.

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[9] It was originally proposed by Rothbarth (1943) and has been applied by Nicholson (1949), Henderson (1949, 1950), Leslie & Steele (1984), Olson (1983), Deaton & Muellbauer (1986), and Deaton, Ruiz-Castillo & Thomas (1989).

Conversely, one would expect that at identical income levels, a family with a child would spend less on adult clothing than the family without children. This is reasonable since the adults with no children have their entire incomes to spend on themselves, whereas the parents with a child also have to meet the needs of the child, and therefore have less to spend on themselves.

If the reduction in spending on adult clothing occurs as a result of a change in the income available for their own consumption, and not because the addition of a child has somehow changed parental tastes in clothing, then adult clothing expenditures can be used as an indicator of parental welfare and can generate a calculation of the amount spent on children.

The discussion so far has focused on parental clothing as a good which only parents consume, but there are others that fit into this category. Alcohol & tobacco are two obvious choices but they tend to be underreported in surveys[10], and their use does not always decrease with the addition of children.[11] Spending on these two goods is evidently affected by more than just changes in adult income.

It is preferable that several goods be combined into a composite of Adult Goods that would act as an indicator of parental welfare. This allows for a greater degree of confidence that the spending behaviour observed is truly an indicator of well-being. For example, if parents change their spending on a particular Adult Good because they have altered their tastes for the good and not because of a change in the income available for their own consumption, then the ability of that Adult Good to represent parental well-being is diminished. If several goods are included together as a composite, however, then some changes in taste can be tolerated, provided that not all of them operate in the same direction.

1.3.1 Sample Selection

The Adult Goods Model was applied to the 1986 FAMEX Survey using a composite of adult clothing, gifts to charity, and miscellaneous spending (interest on personal loans, dues to unions and professional associations, lottery tickets). For the reasons discussed above, alcohol & tobacco were not included.

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[10] Henderson, 1950.

[11] Deaton, Ruiz-Castillo & Thomas (1989) found that the addition of a baby to a household actually increased expenditures for tobacco and alcohol.

The general criteria described at the beginning of this chapter were used to select 3506 cases from the 1986 FAMEX Survey for further study. The sample was further subdivided to study the influence of income on the amount families spend on children. Families with gross incomes above the median (middle value) gross family income were classified as upper income, and those with incomes below the median were classified as lower income.

Spending on child care was excluded from this analysis. Since these expenditures are highly visible, they can easily be included separately in child support awards. In addition, it is likely that for some families, spending on child care is underreported, especially when the transactions involve cash, or when relatives or friends provide care for little or no compensation.

1.3.2 Derivation of the Cost of Children

Expenditures on children derived from the Adult Goods Model are specific to the age and number of children, to the ages of the parents, and to family income. In order to calculate the total expenditures on children from age 1-17, it was necessary to produce a synthetic family life cycle. The life cycle begins with the first child born to a mother and father aged 26 and 28 respectively. Subsequent children are born two years apart.

Gross family incomes for the life cycle were calculated by using estimates from the sample. Separate incomes were determined for the upper and lower income sub-samples for each region of Canada. In each region, the same values for ages of parents and children were used, the only variation being gross family income. Children were spaced two years apart to approximate national statistics on age at birth. Ages of head and spouse correspond to average ages at first marriage and average ages at birth.

Annual adult goods expenditures were predicted using the synthetic life cycle. The income at which a couple with children and a similar childless couple spent on adult goods in each year was calculated. Expenditures on a child in each year was the difference between the income of the family with the child and the predicted corresponding income of the childless family. Results using the synthetic life cycles are presented in Table 6. It should be remembered that all dollar figures are 1986 dollars. The same numbers in current dollars will be higher than those presented in Table 4.

Table 6 **Total Spending on Children over the Life Cycle* by Region and Income Level (1986 dollars)**

	One Child Family			Two Children Family			Three Children Family			Four Children Family		
	Dollars Spent (1986 $)	% of Gross Income	% of Net Income	Dollars Spent	% of Gross Income	% of Net Income	Dollars Spent	% of Gross Income	% of Net Income	Dollars Spent	% of Gross Income	% of Net Income
Atlantic Region												
Upper Income	84,142	10	12	171,466	17	22	227,611	21	26	274,746	23	28
Lower Income	63,827	13	15	153,425	27	32	187,662	30	35	219,371	32	37
Quebec Region												
Upper Income	88,482	10	13	180,308	18	23	239,349	21	28	289,915	23	30
Lower Income	67,503	14	17	162,262	29	34	198,471	31	38	232,007	33	40
Ontario Region												
Upper Income	94,580	10	13	192,735	18	23	255,844	21	27	308,827	23	29
Lower Income	71,964	14	16	172,985	28	33	211,587	31	36	247,339	33	38
Prairie Region												
Upper Income	93,040	10	13	189,597	18	23	251,678	22	27	303,798	24	30
Lower Income	74,944	14	16	180,148	30	35	220,348	33	38	357,580	35	41
Prairie Region Subdivided - Saskatchewan & Manitoba												
Upper Income	87,221	10	13	177,793	18	22	236,054	21	26	284,987	23	29
Lower Income	72,190	14	16	173,352	29	34	212,505	32	37	248,388	34	40

	One Child Family			Two Children Family			Three Children Family			Four Children Family		
	Dollars Spent (1986 $)	% of Gross Income	% of Net Income	Dollars Spent	% of Gross Income	% of Net Income	Dollars Spent	% of Gross Income	% of Net Income	Dollars Spent	% of Gross Income	% of Net Income
Prairie Region Subdivided - Alberta												
Upper Income	99,084	11	14	201,954	19	25	268,132	23	29	323,715	25	32
Lower Income	75,117	14	17	189,471	31	36	231,729	34	40	270,859	36	42
British Columbia Region												
Upper Income	85,420	10	12	174,069	17	21	231,067	20	25	278,918	22	28
Lower Income	73,138	14	17	175,808	25	35	215,039	32	38	251,374	34	40

* Figures shown are for the total period from youngest child aged 1 to oldest child aged 17.

1.3.3 Results

Table 6 shows estimates derived using the Adult Goods Model for the amount spent on children by families with 1-4 children over the life cycle by region and income level. As has been found in studies using similar methodologies, upper income families spend more dollars but a smaller proportion of income than lower income families. Parents in the Atlantic region spend the least on their children in absolute terms, although as a percentage of income, their spending is comparable to other regions. The low dollar figures reflect the relatively lower incomes of the Atlantic region. Parents in Ontario and the Prairies exhibit the highest spending in absolute terms. Differentiating between Alberta and Saskatchewan/Manitoba, however, shows that Albertan parents spend more on their children than any other region of the country both in terms of dollars and percentage of income.

Table 6 also shows strong economies of scale in raising children. On average, upper income families spend 30-35 % less on a second child than on the first, about 50 % on the third than on the second, and an additional 50 % less on the fourth than on the third.

1.3.4 Limitations

The Adult Goods Model yields results that show less is spent on clothing for older children than for younger children. This somewhat surprising result is undoubtedly caused by difficulties with the clothing specification and brings into question the reliability of the estimates for older teenagers.

The root of the difficulty is that the public-use tape version of the FAMEX contains some inherent limitations. One of the major problems is that clothing expenditures for parents are combined with those of children aged 14 and over. Since clothing comprises a major part of the composite Adult Goods, it is necessary to disaggregate what parents spend on themselves from what is spent on teenage children. To address this difficulty, it was assumed that the proportion spent on clothing for children over 14 is similar to that spent on younger children. This proportion was then used to calculate an absolute amount representing the clothing costs of teenage children and this was subtracted from the aggregated totals for all household members over 14 offered by FAMEX.

While the clothing issue is partially resolved, it is still possible that the Adult Goods Model could underestimate the true costs associated with children. When children are added to a family, certain goods become more expensive to the family because more must be purchased to satisfy family needs.[12] For example, it becomes more expensive to travel by air because the family must pay for more plane tickets than when there were no children. However, when parents purchase adult goods, the presence of children, by definition, does not affect the amount purchased. In effect, adult goods have become relatively cheaper in comparison with goods that both parents and children consume. Economists argue that when the price of a good falls, we will buy more of it. If parents react to the presence of children by purchasing more adult goods because they are now relatively cheaper, then child costs determined using this model will underestimate the true amount spent on children. In this study, however, the greatest part of the adult goods composite is made up of parental clothing. Both parents and children consume clothing, and it is only the nature of the good that allows parental and child consumption to be separated. Therefore the argument does not apply.

1.4 The Consumption Model

The objective of the Consumption Model is to follow the same household through its life cycle to see how expenditures change with changes in demographic structure. The difference between expenditures in periods with children and without children is taken to be the cost of children.

The Consumption Model is grounded in what economic theory calls the life cycle hypothesis. It argues that rational households will save or borrow as necessary so as to keep the "value of money" the same across different time periods. Thus, if a family anticipates that money "will be worth more" next year than this year because expenditures increase, it will save for next year. Indeed the theory states that it will save just enough so that the "value of money spent" in each year is the same. It turns out that we can give these vague phrases a precise and operational meaning that economists refer to as the "marginal utility of money."

The key to understanding how this can be useful in estimating the costs of children is to observe that children increase the "value of money spent." According to the theory, parents will save toward the costs that children bring before the children are born. Indeed, prospective parents may even postpone having children until they can afford them. Once the children are born, parents spend an increasingly large proportion of their income as children age, perhaps even drawing on savings so that the proportion of income spent is greater than one. Once the children leave home, parents will lower their total expenditures.

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[12] Deaton & Muellbauer (1986).

To illustrate the basic idea behind the Consumption Model, consider two couples. Let us assume that each couple receives an income of $27,500 in each year between age 20 and age 60 (where age refers to the age of the woman). The first couple plans to stay childless and spends all of its income each year. The second couple plans to have one child when the woman is aged 30. This couple saves $7,500 per year for 10 years until the birth of the child (expenditures for themselves each year are $20,000). Their expenditures increase by $10,000 on the birth of the child. Expenditures then increase in each of the next 20 years until they reach $40,000. At this point the child leaves home (the child is 20 years old and the mother is 50 years old) and expenditures fall again to its "pre-child" level of $20,000. According to this hypothetical example, the cost of an infant is $10,000 (= $30,000 - $20,000) and the cost of a 20 year old is $20,000 (= $40,000 - $20,000).

1.4.1 Limitations

The first drawback of the Consumption Model is that it requires very specialized data and estimation techniques. To estimate the costs of children using the Consumption Model we would ideally follow the same households as they have children and as these children age and leave home. Data that follows the same household through time is known as panel data. Unfortunately, there is no panel data in Canada that collects information on expenditures. The FAMEX Survey samples a particular household only once.

Given the limitations of available data, different techniques are required in order to use the Consumption Model. Let us say that we want to compare the total expenditures of a typical family with one ten-year old child with their total expenditures a year previously when the child was nine. If we observe any household only once, then we have to compare this household with a typical family which has one child aged nine in the same year, rather than comparing the family in question with itself in the previous year. Although such a procedure is likely to be less precise than one that uses panel data there is no reason to believe it will lead to bias in the estimates of expenditures on children.

The second principal drawback of the Consumption Model is that it is based on a particular theory of how households make savings decisions. This theory may simply be wrong. Consider a household that spends a fixed fraction of its income each year and saves the rest. It will continue to spend the same proportion after the birth of a child though it may reallocate that spending, for example reducing spending at restaurants and increasing it on diapers. Since the same proportions of income continue to be spent and saved, expenditures remain constant and, according to the Consumption Model, the cost of a newborn child is zero.

Although the life cycle hypothesis may not apply to cases such as the one described in the previous paragraph, it is widely felt among economists to be appropriate for the majority of the population. The most serious problem with the theory is that there may be households that want to keep the "value of money spent" constant over time but they may not be able to do so. In particular, if the family has low current income but anticipates higher future income, it may not be able to borrow against future expectations. In this case we would observe that the "value of money spent" falls over time for such a family.

To take an example, suppose that we observe a married-couple with no savings who are just starting a family. Suppose further that one of the parents leaves the labour force while the children are young but anticipates re-entering once the children are in school. In this case they would like to borrow against future income to meet the needs of their young children now. If this is not possible, then the Consumption Model will overestimate the cost of older children relative to younger children since spending on younger children is less than what the couple would really like. Indeed, if the couple cannot borrow anything (and have no savings) then income and total spending will actually fall as the mother stops working on the birth of the first child. In this case, the Consumption Model would estimate that the cost of the first child is negative.

Since households that cannot borrow as they wish will skew the estimates yielded by the Consumption Model, it is best to exclude them from the analysis. One way of identifying families that cannot borrow is to exclude those that have no savings. Rather than do this, however, the author of the study simply included all possible variables that might signify being unable to borrow. It was found that families with no financial reserves do spend less on their children than otherwise identical families even when they have the same income.

The final problem with the Consumption Model is that it is not well suited for estimating the costs of children associated with housing and durable goods. This is because the typical family does not buy large items like cars and household appliances every year. Ideally, we would like to measure the use or "service flow" of durable goods rather than their purchase, but this is not recorded in the FAMEX Survey.

If we consider only the purchases of durable goods, then we may well seriously underestimate the cost of children since parents can alter the timing of purchases of such goods to periods when the money needs of children are less pressing. To illustrate, suppose a couple anticipates having a child in a year and buys a family car now rather than waiting until the child is born. In this case we would observe that the purchase of a car is negatively related to the presence of a young child, which is to say that it precedes it rather than following it. An uncritical use of the Consumption Model might lead us to conclude that spending on transportation for babies is negative!

Similarly, expenses recorded in FAMEX for shelter do not properly reflect the service flow from ownership. For owner-occupiers of homes, the FAMEX definition is based on mortgage interest payments which are only loosely related to the value of the house for the family owning it. On the other hand, the FAMEX Survey does record the value of the home that the household occupies if it is an owner-occupier. This reflects better the "service flow" from owning a house than do mortgage payments. Consequently, this measure for housing services was used rather than the FAMEX definition.

In the end, estimates for the cost of children in spending on durable goods were prepared by first estimating spending on children for goods other than durable goods and housing. These estimates were then adjusted by a factor reflecting the typical ratio of such expenditures to all expenditures. The FAMEX surveys for 1982, 1984 and 1986, the three most recent available, were employed to generate estimates of expenditures on children.

Standard statistical techniques were used to estimate the proportion of current income that families spend on goods and services. It was assumed that this proportion would be influenced by the following factors:

A. the numbers and ages of any children,
B. the pre-tax and after-tax income of the family,
C. the region in which the family lives,
D. the size of the population in the area,
E. the occupational status of the wife,
F. the educational level of the parents,
G. the occupational status of the husband,
H. the language most spoken in the home,
I. whether the household has any asset income,
J. whether the family rents or owns its residence,
K. the ages of the parents,
L. the year surveyed.

From the estimates of how much a family spends, we can estimate the costs of children by comparing the predicted expenditures of a childless family to the predicted expenditures of a comparable family with children. A comparable family is defined as one that is identical with respect to items B to L above.

When estimating expenditures, particular care was taken to allow for the effects of the numbers and ages of children. A great many variables were investigated to make sure that the effects of children were being correctly captured.

1.4.2 Results

Table 7 offers a summary of estimated expenditures on children in Canada using the Consumption Model and the FAMEX database.

Table 7 Annual Household Expenditures on Children in Canada based on the Consumption Model (1986 dollars)

	Gross Income					
Family Type & Age of Child(ren)	**$20,000**	**$30,000**	**$40,000**	**$50,000**	**$60,000**	**$70,000**
(a) 1 child (0-6)	$ 588	$1,223	$1,858	$2,493	$3,129	$ 3,764
(b) 1 child (7-11)	$ 908	$1,625	$2,341	$3,058	$3,774	$ 4,491
(c) 1 child (12-18)	$1,849	$2,830	$3,790	$4,751	$5,712	$ 6,673
(d) 2 children (0-6)	$1,125	$1,764	$2,404	$3,043	$3,682	$ 4,321
(e) 2 children (7-11)	$1,829	$2,647	$3,465	$4,283	$5,101	$ 5,919
(f) 2 children (12-18)	$3,941	$5,295	$6,649	$8,004	$9,358	$10,713
(g) 2 children (0-6,7-11)	$1,477	$2,206	$2,934	$3,663	$4,391	$ 5,120
(h) 2 children (0-6,12-18)	$2,533	$3,530	$4,526	$5,523	$6,520	$ 7,517
(i) 2 children (7-11,12-18)	$3,237	$4,412	$5,588	$6,764	$7,939	$ 9,115
(j) each additional child (0-6)	$ 752	$ 943	$1,134	$1,325	$1,516	$ 1,706
(k) each additional child (7-11)	$ 791	$ 992	$1,193	$1,393	$1,594	$ 1,795
(l) each additional child (12-18)	$1,143	$1,433	$1,723	$2,014	$2,304	$ 2,594

Note: The expenditures for each additional child after the first two is for the youngest child.

Other things being equal, among the most important qualitative results yielded by the analysis using the Consumption Model were the following:

(i) Expenditures increase for second and subsequent children but are proportionally lower than for the first child. Thus the expenditures on two children in a family are lower than the corresponding expenditures on two similarly aged only children.

(ii) Expenditures on children depend on the average age of the children in the family. Statistical tests completed on the data indicated that the cost of a child did not increase incrementally with each year of age. For example, the increase in costs each year for children ages 10 to 15 is not the same as the increase in cost each year for children ages 0 to 3. To correct for this non-linearity on costs of children with age of children, a functional relationship was derived and applied to the data.

(iii) Higher income households spend more dollars on children.

(iv) Expenditures on children did not depend on the size of the area of residence (factor D above), the employment status of the mother (factor E above), the educational level of the parents (factor F above) or the occupation of the father (factor G above).

(v) The region of residence (factor C above) makes only a small difference to expenditures on children, except for British Columbia.

(vi) Households spend significantly more on their children if: they own their residence (factor J above); they are anglophone (factor H above) or they have some asset income (factor I above).

The estimates yielded by the Consumption Model seem reasonable. They satisfy all of the criteria that common sense might wish to impose: expenditures are higher for older children, expenditures are higher as the number of children increase, expenditures on the first child are higher than for subsequent children, and expenditures are higher for high income families.

There is no particular pattern to the proportion of income spent on children. For a family with one young child (family type a) this proportion rises with income; for a family with an only child aged 12-18 (family type c) it is more or less constant, and for a family with two older children (family type f) it falls with income.

The regional variation in child expenditures is relatively small. The highest expenditures (at a given level of income and for a given family composition) are in B.C. and Ontario and the lowest are in the Atlantic region. These differences are relatively small; for example, middle income parents in B.C. spend about 8.5 % more on an only child aged 12-18 than does a similar family in the Atlantic region.

1.4 Comparative Analysis

All four models described above yield certain common patterns in their findings. These can be summarized briefly as follows:

1. The income levels of a family determine the level of its spending on children;

2. Costs tend to rise with the age of the child in the Extended Engel and Blackorby/Donaldson Models as well as the Consumption Model.

3. Wealthier families spend more on their children than do poorer families, though not necessarily proportionately more. In the Blackorby/Donaldson Model, there is a proportional difference between lower- and higher-income families that increases with the age of a child. It is suggested that this may be because such households have more discretionary income and there are more possibilities for expenditures on older children. The Adult Goods Model yields the opposite result. It suggests that upper income families spend more dollars but a smaller proportion of their income on children than do lower income families. In the Consumption Model, there is no particular pattern to the proportion of income spent on children. For a family with one young child this proportion rises with income; for a family with an only child aged 12-18 it is more or less constant and for a family with two older children it falls with income.

4. All models suggest that expenditures on children increase with number of children but subsequent children are not as costly. In other words, there are economies of scale realized in having larger families. In the Adult Goods Model, for example, upper income families spend 30-35 % less on a second child than on the first, about 50 % less on the third than on the second, and an additional 50 % less on the fourth than on the third.

5. Depending on the economic model, there are only slight regional variations in the overall levels of expenditures on children. According to the Adult Goods Model, families living in Alberta spend the most on their children, both in terms of dollars spent and as a percentage of income. According to the Consumption Model, the region of residence has a slight impact on expenditures on children. Finally, according to Blackorby/Donaldson and Extended Engel Models, the level of urbanization and region of residence does not affect the proportion of income spent on children. However, in actual dollars, families living in Ontario spend more on their children than families living in the Atlantic provinces due to the difference in the average income of parents in these two regions.

The four models discussed above yield dramatically different estimates of expenditures on children. Table 8 offers a comparison of the results for Canada as a whole in selected income categories and selected family types. Blackorby/Donaldson estimates are somewhat higher for every income level, age and number of children than those achieved using the Adult Goods Model which produces considerably lower amounts for older children. The Consumption Model and the Extended Engel models tend to produce estimates at the lower end of the scale.

Table 8 A Comparison of Annual Expenditures on Children for the Extended Engel, Adult Goods, Consumption, and Blackorby/Donaldson Models

Annual Gross Income: $20,000				
	Extended Engel	B/D	Adult Goods	Consumption
1 child (0-6)	$1,057	$2,499	$3,137	$ 401
1 child (7-11)	$1,693	$3,145	$3,475	$ 766
1 child (12-18)	$2,285	$3,739	$3,834	$1,854
Annual Gross Income: $40,000				
	Extended Engel	B/D	Adult Goods	Consumption
1 child (0-6)	$1,755	$4,198	$4,531	$1,671
1 child (7-11)	$2,811	$5,810	$5,020	$2,200
1 child (12-18)	$3,796	$7,227	$5,538	$3,776
Annual Gross Income: $70,000				
	Extended Engel	B/D	Adult Goods	Consumption
1 child (0-6)	$3,072	$ 7,347	$6,097	$3,576
1 child (7-11)	$4,919	$10,167	$6,754	$4,351
1 child (12-18)	$6,644	$12,648	$7,451	$6,659

Table 9 offers another way of looking at what families at different income levels spend on children. As in Table 8, it takes families with one child as the point of reference and expresses expenditures on that child as a percentage of gross income. It should be added that these percentages are averages for all one-child families at the stated income level.

Table 9 Average Percentage of Gross Income Spent on One Child by Economic Model and Income Category

Income	Extended Engel	Blackorby/ Donaldson	Adult Goods	Consumption
$20,000	8.4	15.7	17.4	5.0
$40,000	7.0	14.4	12.6	6.4
$70,000	7.0	14.4	9.6	6.9

Although the research on expenditures on children did not necessarily provide a single percentage of income to be applied in every income category, a method has been devised to produce one for use within different types of guidelines.

Table 10 shows this single percentage of gross family income derived from the results of the four different studies estimating expenditures on children. The values are derived from calculating the mean of all combinations of income categories and number of children. For example, the percentages for one child are based on 507 simulations (169 income combinations multiplied by 3 child combinations) while the percentages for four children are based on 2,535 simulations (169 income combinations multiplied by 15 child combinations).

Table 10 Average Percentage of Gross Income Spent on Children by Economic Model and Number of Children

	Extended Engel	Blackorby/ Donaldson	Adult Goods	Consumption
1 child	7.21	15.23	9.51	6.94
2 children	9.85	21.05	14.35	10.35
3 children	12.30	25.75	17.79	14.33
4 children	14.58	29.53	20.41	17.96

CHAPTER 2
DESCRIPTION OF SELECTED CHILD SUPPORT GUIDELINES

A number of countries throughout the world have adopted various forms of child support guidelines. The Family Law Committee has studied a number of these guidelines and has selected seven for illustration within this report. They are as follows:

A. The Income Shares
B. The Income Shares with Reserve[13]
C. The Delaware Melson
D. The Flat Percentage
E. The Flat Percentage with Reserve[14]
F. The Australian
G. The Income Equalization

This chapter will explain the general components of the different guidelines and describe why certain choices for the components were made. It is important to note that the amounts chosen for the various components of the guidelines were selected for illustration purposes only. Should guidelines in fact be implemented, different amounts may be recommended based on the results of the consultation process. The selected guidelines were then applied to various case scenarios. The examples provide a clear demonstration of how the various approaches could impact on actual child support awards.

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[13] and [14] **The Income Shares with reserve and the Flat Percentage with reserve are two guidelines which have been developed by the Committee for testing.**

2.1 COMMON COMPONENTS USED IN THE CHILD SUPPORT GUIDELINES

2.1.1 Type of Income

Gross income is always used since it corresponds to the Statistics Canada data used in the studies on expenditures on children.

2.1.2 Simple Percentage

Some guidelines are based upon a calculation which involves the application of a single percentage of income to all cases. As indicated in Chapter 1, the economic studies provide information on the average expenditures on children by income level, number of children and economic model. Should a guideline requiring a single percentage of income be implemented, the figures used for the simple percentage could either be the average of expenditures for a given income category, by number of children, or the average percentage of expenditures on children for all income categories, by number of children. For illustration purposes, we have used the single percentages referred to in Table 10 (see page 38). These percentages have been applied to the Delaware Melson, the Flat Percentage, the Flat Percentage with Reserve and the Australian Guidelines.

2.1.3 Amount of the Self-Support Reserve

A self-support reserve is a basic amount which a parent may keep for his or her minimum needs before being required to pay child support. Where a guideline includes a self-support reserve, a determination of that amount had to be made for the purpose of illustration.

The following amounts were considered:

- The lowest provincial/territorial welfare income for a single individual in Canada: in 1991 dollars = $3,166.40[15]
- The highest provincial/territorial welfare income for a single individual in Canada: in 1991 dollars = $7,856[16]
- The national welfare average in Canada in 1991 dollars = $5,791.26[17]
- The low income cut-offs developed by Statistics Canada, in 1991 dollars for a family of 1 = $12,557.80[18]
- 1991 personal basic Income Tax exemption = $6,280.[19]

After some testing using each of these figures, it became apparent that the amount of the self-support reserve had to remain at a minimum level in order to achieve child support awards which would maintain the principle of both parents' financial responsibility for their children. A self-support reserve at the level of the low income cut offs, for example, may not be realistic since it produced either unreasonably low child support awards or none at all in low income families. Since there are a high percentage of families living below or at the low income cut-off levels in Canada, allowing a self-support reserve at that amount would remove parental obligation for the financial needs of children. Furthermore, in all guidelines, parents would also have at their disposal the difference between the amount of child support and their total income.

After trying out the different options considered, the 1991 basic personal exemption ($6,280) under the Income Tax Act was selected for the purposes of this report. This amount did produce child support awards in low income situations while allowing a basic amount for the parents' needs. It also has the added advantage of actually being applied on a national basis. However, it is important to note that this amount was chosen for illustrative purposes and if a guideline with a self-support reserve were eventually adopted, the amount could be changed if a better alternative was found.

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[15] Amount from the province of New Brunswick, Welfare Incomes, Report by the National Council of Welfare, 1989.

[16] The amount is from the Yukon, Welfare Incomes 1989, Report by the National Council of Welfare.

[17] The amount has been obtained from the Report by the National Council of Welfare on Welfare Incomes in 1989.

[18] Report by the National Council of Welfare, 1989.

[19] Figure provided by the Department of Finance.

2.1.4 Child's Basic Needs

Some guidelines require the determination of a specific amount which represents the child's basic needs. Originally, an amount similar to the parent's self-support reserve was used but it produced questionable results (i.e., the total child support award could be higher than what the research produced as the total cost of children). An amount developed by subtracting the average welfare amount for a single employable individual, from the average welfare amount for a single parent with one child, was also considered; the amount in 1991 dollars was $5,934.79. We also considered amounts produced by the Social Planning Council of Metropolitan Toronto using the Basket of Goods approach,[20] and converted these amounts to 1991 dollars: $7,028.63 for a girl and $7,725.18 for a boy. The problem was even more pronounced.

Therefore, for testing purposes, an amount equivalent to half of the parent's self-support reserve ($3,140 per child) was used. The application of this figure produced results which appeared more reasonable.

Again this amount is for illustration only and does not imply that if guidelines which specified child's basic needs were eventually adopted that this amount would be selected.

2.2 DESCRIPTION AND APPLICATION OF THE GUIDELINES

With the aid of a case scenario, the following section provides a detailed example of the specific steps involved in calculating child support using the different child support guidelines combined with the four economic models. The mathematical formulae used for their application are also presented.

Neither the four economic models nor the guidelines accommodate for the impact of the support award on the custodial parent's taxable income. Therefore, after establishing the amount of child support as determined by the guidelines, it is necessary to compute the income tax implications for both parties. For the purposes of illustration, the analysis of the income tax implications was conducted using tax rates applicable in the province of Ontario. However, it should be noted that for middle income families residing in the other provinces and territories, the tax rates vary from approximately 1 to 5 per cent of the figures established for Ontario.[21] The income tax adjustments were effected in a manner which only compensates custodial parents for the additional income tax they would have to pay as a result of the inclusion of the child support award in their income. The benefit of the deduction is left to non-custodial parents without being passed on to the child. We know, however, that it was the Department of Finance's intention that this deduction benefit the children. The issue of how to distribute the deduction should, therefore, be addressed if guidelines are implemented.

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[20] The costs of raising children in the Toronto area in 1986, Social Planning Council of Metropolitan Toronto, Social Infopac, Vol. 6, No. 5, November 1987.

The following factors were taken into account in computing the tax implications :

- gross income (assumed to be equal to earned income plus or minus income transfers)
- non-refundable tax credits: basic personal, equivalent to married, children under 18 (including doubling for 3rd child)
- federal refundable GST tax credit, for individuals and dependents
- family allowance
- social security taxes
- social security tax credits
- basic federal tax
- federal individual surtax
- basic Ontario income tax
- Ontario surtax
- Ontario tax reduction

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[21] Due to the distinctiveness of Québec's income tax system we do not have an estimate of the difference between the tax effects of child support in Ontario and Québec.

- Ontario Property and rent tax credit ("rent" was assumed at 30 per cent of gross income.)

- Ontario sales tax credit

The detailed information was obtained from the :

(i) 1990 federal Income Tax Guide (Ontario version)

(ii) Income Security Programs Branch, National Health and Welfare,

(iii) Department of Finance, Tax Policy Section including the updates of the federal parameters from 1990 to 1991.

(iv) Ontario Ministry of Revenue including the updates for Ontario parameters

As indicated earlier, the economic studies on the costs of raising children do not include costs associated with child care. If child support guidelines were to be implemented, the child support award would have to be adjusted to reflect the actual costs associated with child care and/or related expenses (day care, after school programs, special education needs, etc.) extraordinary medical expenses and the tax implications. For purposes of illustration, the following figures have been chosen to reflect costs associated with day care :

(i) If a child is between the ages of 0-6, the day care costs are assumed to be $400 per month per child;[22]

(ii) If the oldest child is between the ages of 7-12, the after school program costs are assumed to be $150 per month per child;

(iii) If the family consists of two or more children and at least one is between the ages of 13-17, it is assumed that there are no after school costs as the 13-17 year old can babysit younger siblings.

The portion of child care costs attributed to each parent is calculated by pro-rating the total costs using the gross incomes of both parties. If, however, the guideline includes a self-support reserve, the pro-rating is computed using the gross income minus the self support reserve of the parties. The child care costs are added on after the income tax adjustment because the custodial parent should be able to deduct from his or her income the amount of the child care expenses incurred. The deductibility of child care costs is meant to encourage parents to enter or stay in the work force.

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[22] Day care costs may vary considerably from one region to the next. A management consulting firm, Runzheimer Canada Inc. has conducted a survey in 17 cities on the costs of placing a three year old child in a non-profit Canadian day care centre. The average costs by considering the 17 cities are $410.49/month.

Although six case scenarios have been developed, for ease of reading, the "mechanics" of applying the guidelines are presented only for the first scenario. The results of the application of the guidelines to the five other case scenarios are presented in Appendix 1. To determine the child support awards for these cases, the steps used in Scenario 1 may be followed.

SCENARIO 1

Assume that we are establishing an order for one child who is ten years of age. The custodial parent has an annual gross income of $20,000. The non-custodial parent has an annual gross income of $40,000. The total gross income for both parents is therefore $60,000. Day care costs are assumed to be $150 per month.

A. INCOME SHARES GUIDELINE

This guideline was originally developed by the Child Support Guidelines Project in the United States. The Income-Shares is the most popular guideline in the United States and has been adopted integrally or in modified form in 31 States. This guideline, which is known as resource sharing, operates under the basic assumption that a child should receive the same amount of parental income which he or she was receiving before the family breakdown, in proportion to each parent's income.

The results of the studies on expenditures on children are essential to the application of this guideline, since they provide the amount of the children's share of expenditures within the total family income. That amount is prorated between both parents in proportion to their incomes. Then, adjustments are made to account for the income tax implications. Finally, child care and extraordinary medical expenditures are calculated and prorated between the parents.

If we were to use the **income shares guideline** combined with the **Consumption model** the following steps would be applied.

1) Determine gross income of non-custodial and custodial parents.

Example

Non-Custodial Parent:	Gross Income = $40,000
Custodial Parent:	Gross Income = $20,000

Total Parental Income: $60,000

2) Calculate percentage of gross income of non-custodial parent to total gross income of two parents.

$$A = \frac{\text{income of non-custodial parent}}{\text{income of custodial parent + income of non-custodial parent}}$$

Example

Non-Custodial Parent:

$$A = \frac{\$40{,}000}{\$20{,}000 + \$40{,}000} = .67$$

3) Calculate the percentage of gross income of the custodial parent to the total gross income of two parents.

$$B = \frac{\text{income of custodial parent}}{\text{income of custodial parent + income of non-custodial parent}}$$

Example

Custodial Parent:

$$B = \frac{\$20{,}000}{\$20{,}000 + \$40{,}000} = .33$$

4) Determine joint child support obligation as established by the estimated expenditures on children from the economic models.

For this example, estimates from the Consumption model will be used - the annual amount is $3,634 or $303 per month (See Appendix 2 - Annual Gross Income of Family is $60,000).

5) Pro-rate the child support obligation between the two parents. This constitutes the first component of the award.

component 1a = A x estimated expenditures on children
component 1b = B x estimated expenditures on children

Example

Non-Custodial Parent: A = .67 x $303 = $203
Custodial Parent: B = .33 x $303 = $100

6) The tax calculation is then effected. An adjustment is added to the amount of the non-custodial parent's contribution to compensate the custodial parent for the amount he or she will have to pay in taxes on the amount of child support. This amount constitutes the second component of the award.

Component 2 = tax adjustment

Example

In this example, the tax implications of a monthly child support award of $203 on the custodial parent's income is $80.

7) The total of the child care expenses and extraordinary medical expenses are determined and divided in proportion to each parent's income. This constitutes the third component of the award.

Component 3a = A x child care costs & extraordinary health expenses
Component 3b = B x child care costs & extraordinary health expenses

Example

Non-Custodial Parent: .67 x $150 = $100
Custodial Parent: .33 x $150 = $50

8) The three components are added together to constitute the total child support award. The custodial parent's share is also determined.

award = component 1 + component 2 + component 3

Example

Non-Custodial Parent: $203 + $80 + $100 = $383
Custodial Parent: $100 + $50 = $150

In summary, the child support contribution per month of both parents would be as follows:

	Custodial Parent	**Non-custodial Parent**
Base Amount	$100	$203
Tax Adjustment	-	$ 80
Child Care Costs	$ 50	$100
Total Award	$150[23]	$383

Given the current taxation system in Canada, the non-custodial parent benefits from a deduction for the amount of child support paid. In order to accurately portray the actual contribution by the non-custodial parent, it is important to subtract the tax deduction from the amount of the award. However, if guidelines are implemented which take income tax implications into account, the deduction should be divided in some way between the parties in order to benefit the child.

The following chart outlines the base amount per month for the **non-custodial parent** using this same case scenario in combination with the income shares guideline and the results from the four economic models. The tax adjustment is then determined and added on. The total award represents the actual amount of the child support award. The total contribution represents the actual financial costs of the award to the non-custodial parent.

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[23] The Court Order would not necessarily state the financial contribution of the custodial parent. However, it is assumed that the custodial parent would, at a minimum, contribute at least this amount.

	Consumption	**Adult Goods**	**Extended Engel**	**Blackorby/Donaldson**
Base Amount	$203	$346	$234	$484
Tax adjustment	$ 80	$152	$ 93	$246
Child Care	$100	$100	$100	$100
Total Award	$383	$598	$427	$830
minus *tax deduction*	$116	$204	$135	$300
Total Contribution	$267	$394	$292	$530

Thus, the range of the child support award is from $383 to $830.

B. THE INCOME SHARES WITH RESERVE

Current Canadian case law is starting to recognize the idea of allocating a self-support reserve to be deducted from parental income before paying child support. The idea of incorporating a self-support reserve within guidelines explicitly recognizes the principle that both parents should be allowed to meet their minimum needs before being required to pay child support. The consequences of parents not being allowed to properly meet their basic needs will arise mostly where one of the parents has a very low income. In these cases, not allowing parents to meet their minimum needs will only contribute further to the children's poverty where the low income parents are the custodial parents. Not allowing non-custodial parents to meet their minimum needs may simply be encouraging them to default on the support payments. (It should be noted, however, that other guidelines without explicit reserves do allow a parent to meet his or her basic needs because the child support award is only a small portion of the parent's total income.)

For the purposes of this report The Family Law Committee produced an Income-Shares guideline with a self-support reserve. To illustrate the **income shares with reserve guideline** combined with the **Consumption model** in the same scenario, the following steps would be applied.

1) Determine gross income of non-custodial and custodial parents.

Example

Non-Custodial Parent: Gross Income = $40,000
Custodial Parent: Gross Income = $20,000

Total Parental Income: $60,000

2) Determine self support reserve for adults ($6,280 for 1991).

3) Calculate gross income of non-custodial and custodial parents after subtracting self support reserves.

income of non-custodial parent - $6,280
income of custodial parent - $6,280

Example

Non-Custodial Parent: $40,000 - $6,280 = $33,720
Custodial Parent: $20,000 - $6,280 = $13,720

4) Calculate percentage of gross income after reserve of non-custodial parent to total gross income after reserve of two parents.

$$A = \frac{\text{income of non-custodial parent - 6280}}{\text{(income of non-custodial parent - 6280) + (income of custodial parent - 6280)}}$$

Example

Non-Custodial Parent:

$$A = \frac{\$\ 33{,}720}{\$\ 33{,}720 + \$\ 13{,}720} = .71$$

5) Calculate percentage of gross income after reserve of custodial parent to total gross income after reserve of two parents.

$$B = \frac{\text{income of custodial parent - \$6,280}}{\text{(income of non-custodial parent - \$6,280) + (income of custodial parent - \$6,280)}}$$

Example

Custodial Parent:

$$B = \frac{\$\ 13{,}720}{\$\ 33{,}720 + \$\ 13{,}720} = .29$$

6) Determine joint child obligation as established by the estimated expenditures on children from the economic models.

For this example, estimates from the consumption model will be used - the annual amount is $3,634 or $303 per month. (See Appendix 2 - Annual Gross Income of Family is $60,000).

7) To determine the base amount of the child contribution, multiply the percentage obtained in step 4 and 5 to the estimated expenditures on children from the economic models. This constitutes the first component of the award.

Component 1a = A x estimated expenditures on children
Component 1b = B x estimated expenditures on children

Example

Non-Custodial Parent: .71 x $303 = $215
Custodial Parent: .29 x $303 = $88

8) The tax calculation is then effected. An adjustment is added to the amount of the contribution to compensate the custodial parent for the amount he or she will have to pay in taxes. The tax adjustment is based on the sum of component 1 and the effects of its inclusion in the income of the custodial parent. It constitutes the second component of the award.

Component 2 = tax adjustment

Example

In this example, the tax implications of a monthly child support award of $215 on the custodial parent's income is $85.

9) The total of the child care expenses and extraordinary medical expenses are determined and divided in proportion to each parent's income after deduction of the self-support reserve (A). This constitutes the third component of the award.

Component 3a = A x child care costs & extraordinary health expenses
Component 3b = B x child care costs & extraordinary health expenses

Example

Non-Custodial Parent: .71 x $150 = $107
Custodial Parent: .29 x $150 = $43

10) The three components are added together and constitute the child support award. The custodial parent's share may also be determined.

award = component 1 + component 2 + component 3

Example

Non-Custodial Parent: $215 + $85 + $107 = $407
Custodial Parent: $88 + $43 = $131

In summary, the child support award per month of both parents would be as follows:

	Custodial Parent	Non-custodial Parent
Base Amount	$ 88	$215
Tax Adjustment	--	$ 85
Child Care Costs	$ 43	$107
Total Award	$131	$407

The following chart outlines the different steps taken to calculate the child support award per month for the **non-custodial parent** using this same case scenario in combination with the income shares with reserve guideline and the results from the four economic models.

	Extended Engel	**Blackorby/Donaldson**	**Adult Goods**	**Consumption**
Base Amount	$250	$516	$369	$215
Tax adjustment	$ 99	$292	$167	$ 85
Child Care	$107	$107	$107	$107
Total Award *minus* *Tax Deduction*	*$456* *$143*	*$915* *$339*	*$643* *$220*	*$407* *$124*
Total Contribution	$313	$576	$423	$283

Thus, the range of the child support award is from $407 to $915.

C. THE DELAWARE MELSON GUIDELINE

This guideline was created by Judge Elwood F. Melson in 1979 in the Delaware Family Court. However, the original guideline was revised in 1990. Although this guideline appears to function very well, it has only been adopted in three States: Delaware, Hawaii and West Virginia. The Delaware Melson guideline is perceived as being more complex than other guidelines and is known as a hybrid cost-resource sharing guideline.

The main objective of this guideline is to ensure that the parents will first be allowed a self-support reserve at poverty level[24] before being required to pay child support. All remaining income will then be devoted to cover the child's basic needs and will be apportioned between parents in relation to all remaining income. The children will then have the opportunity to share in any surplus income of the non-custodial parent as determined by the "standard of living adjustment" which is a determined percentage of parental income spent on children according to the economic studies.[25]

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[24] The poverty level in Delaware is set at $550/month for an adult and $220/month for a child. These amounts are similar to our determined $6,280 ($523.33/month for an adult) and $3,140 ($261.66/month) for a child.

The Delaware Melson Formula works as follows:

1) Determine gross income of non-custodial and custodial parents.

Example

Non-Custodial Parent: Gross Income = $40,000
Custodial Parent: Gross Income = $20,000

Total Parental Income: $60,000

2) Determine self-support reserve for adults ($6,280 for 1991).

3) Calculate gross income of non-custodial and custodial parents after subtracting self-support reserves.

income of non-custodial parent - $6,280
income of custodial parent - $6,280

Example

Non-Custodial Parent: $40,000 - $6,280 = $33,720
Custodial Parent: $20,000 - $6,280 = $13,720

4) Calculate percentage of gross income after reserve of non-custodial parent to total gross income after reserve of two parents.

$$A = \frac{\text{income of non-custodial parent} - 6280}{(\text{income of non-custodial parent} - 6280) + (\text{income of custodial parent} - 6280)}$$

Example

Non-Custodial parent

$$A = \frac{\$\,33{,}720}{\$\,33{,}720 + \$\,13{,}720} = .71$$

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[25] In the State of Delaware, the standard of living adjustment percentages are: 18% for one child, 27% for two children, 35% for three children and 5% for each additional child.

5) Calculate percentage of gross income after reserve of custodial parent to total gross income after reserve of two parents.

$$B = \frac{\text{income of custodial parent - \$6,280}}{\text{(income of non-custodial parent - \$6,280) + (income of custodial parent - \$6,280)}}$$

Example

Custodial Parent:

$$B = \frac{\$\ 13{,}720}{\$\ 33{,}720 + \$\ 13{,}720} = .29$$

6) Determine child's basic needs (half of the self support reserve is used - $3,140 per year or $262 per month).

7) Multiply the non-custodial parent's percentage to total of children's basic needs for all children ($3140 per month, times number of children). This constitutes the first component of the award.

Component 1 = A x child(rens) basic needs

Example

Non-Custodial Parent: .71% x $3140 = $2,229 per year ($186 per month)

8) Calculate remaining income of the non-custodial parent after the reserve and portion of the childs basic needs.

C = (income of non-custodial parent - $6,280) - component 1

Example

Non-Custodial Parent: ($40,000 - $6,280) - 2,229 = $31,491 per year

9) Multiply the results of C (step 8) by the average percentage of expenditures on children. (From Table 10) This constitutes component 2 - the cost of living adjustment.

Component 2 = C [(income of non-custodial parent - $6,280) - component 1)]
x percentage of expenditures on children

Example

Non-Custodial Parent: $31,491 x 6.94% = $2,186 ($182 per month)

10) The tax calculation is then effected. An adjustment will then be added to the amount of the contribution to compensate the custodial parent for the amount he or she will have to pay in taxes. The tax adjustment is based on the sums of components 1 and 2 and the effects of the inclusion of the amounts on the income of the custodial parent. It constitutes the third component of the award.

Component 3 = tax adjustment

Example

Non-Custodial Parent: $2,229 + $2,186 = $4,415 per year ($368 per month)

In this example, the tax implications of a monthly child support award of $368 on the custodial parent's income is $173.

11) The total of the child care expenses and extraordinary medical expenses are determined and divided in proportion to each parent's income after deducting the self-support reserve. This constitutes the fourth component of the award.

Component 4 = A x child care costs & extraordinary health expenses

Example

Non-Custodial Parent: .71 x $150 = $107

12) The four components are added together and constitute the child support award.

Total award = component 1 + component 2 + component 3 + component 4

Example

Non-Custodial Parent: $186 + $182 + $173 + $107 = $648

The following chart outlines the different steps of the child support award per month for the **non-custodial parent** using this same case scenario in combination with the Delaware Melson guideline and the results from the four economic models.

	Consumption	**Adult Goods**	**Extended Engel**	**Blackorby/Donaldson**
Base Amount	$368	$452	$388	$ 612
Tax adjustment	$173	$218	$178	$ 386
Child Care	$107	$107	$107	$ 107
Total Award *minus* *Tax Deduction*	$648 $227	$777 $275	$673 $232	$1,105 $ 415
Total Contribution	$433	$502	$441	$ 690

Thus, the range of the child support award is from $648 to $1,105.

D. PERCENTAGE OF INCOME GUIDELINE

This method of determining support is definitely the simplest of all child support guidelines. This guideline has been adopted in 16 American States and is known as a cost-sharing guideline due to the fact that the percentages are determined in accordance with research on expenditures on children.

The guideline prescribes that a specific percentage of non-custodial parents' income will be paid as child support. This guideline operates under the assumption that both parents will devote the determined percentage of their income to their children. Where this guideline is applied it does not expressly include a calculation of the custodial parent's share.

Child care and extraordinary medical expenses were included in the established percentages of expenditures on children in the United States where this guideline is used. However, since child care expenses and extraordinary medical expenses were not considered in determining expenditures on children in Canada, it is essential to account for them separately.

This guideline assumes that the difference between the parents' total income and the specified percentage for child support will serve, at least in part, to meet the parents' minimum needs.

The Percentage of Income guideline operates as follows:

1) Determine gross income of non-custodial and custodial parents.

Example

Non-Custodial Parent: Gross Income = $40,000
Custodial Parent: Gross Income = $20,000

Total Parental Income: $60,000

2) Determine the mean percentage of expenditures on children in Canada and multiply this percentage by the gross income of the non-custodial parent. This constitutes the first component of the award.

component 1 = income of non-custodial parent x percentage of expenditures on children

The mean percentage of expenditures on children established by the Consumption model is 6.94 per cent. (See Table 10)

Example

Non-Custodial Parent: 6.94% x $40,000 = $2,776 per year
or $231 per month

3) The tax calculation is effected and the required adjustment is made in favour of the custodial parent. The tax adjustment is based on the amount of component 1 and the effects of its inclusion in the income of the custodial parent. It constitutes the second component of the award.

Component 2 = tax adjustment

Example

In this example, the tax implications of a monthly child support award of $231 on the custodial parent's income is $91.

4) **Determine child care costs and extraordinary health expenditures and apportion between parents according to their total income. This constitutes the third component of the award.**

$$\text{Component 3} = \frac{\text{income of non-custodial parent}}{\text{income of non-custodial parent} + \text{income of custodial parent}} \times \text{child care costs and extraordinary health expenses}$$

Example

Non-Custodial Parent:

$$\frac{\$40{,}000}{\$40{,}000 + \$20{,}000} \times \$150 = 100$$

5) The total child support award is the total of the three components.

$$\text{award} = \text{component 1} + \text{component} + \text{component 3}$$

Example

Non-Custodial Parent: $231 + $91 + $100 = $422

The following chart outlines the different steps taken to calculate the child support award per month for the **non-custodial parent** using this same case scenario in combination with the Flat percentage guideline and the results from the four economic models.

	Consumption	**Adult Goods**	**Extended Engel**	**Blackorby/Donaldson**
Base Amount	$231	$317	$240	$508
Tax adjustment	$ 91	$135	$ 95	$271
Child Care	$100	$100	$100	$100
Total Award minus *Tax Deduction*	$422 $133	$552 $186	$435 $138	$879 $320
Total Contribution	$289	$366	$297	$559

Thus, the range of the child support award is from $422 to $879.

E. THE PERCENTAGE OF INCOME WITH RESERVE GUIDELINE

The Family Law Committee tested a percentage of income guideline with a self support reserve. This guideline operates on the same basis as the percentage of income guidelines except that a parental self-support reserve is deducted before the percentage is applied. In very low income categories this type of guideline is identical to the Australian guideline 1 (the next guideline to be described) which operates only where the custodial parent has an income below average weekly earnings.

The percentage of Income with Reserve Guideline operates as follows:

1) Determine gross income of non-custodial and custodial parents.

Example

Non-Custodial Parent: Gross Income = $40,000
Custodial Parent: Gross Income = $20,000

Total Parental Income: $60,000

2) Determine self-support reserve for adults ($6,280 for 1991).

3) Calculate income of non-custodial parent after subtracting self support reserve from gross income.

A = income of non-custodial parent - 6280

Example

Non-Custodial Parent: A = $40,000 - $6,280
= $33,720

4) Determine the mean percentage of expenditures on children in Canada and multiply this percentage by the gross income of the non-custodial and custodial parent. This constitutes the first component of the award.

component 1 = A x percentage of expenditures on children

Example

The mean percentage of expenditures on children established by the consumption model is 6.94%. (See Table 10)

Non-Custodial Parent: $33,720 x 6.94 = $2,340 per year or $195 per month.

5) The tax calculation is then effected and the required adjustment is made in favour of the custodial parent. The tax adjustment is based on the sum of component 1 and the effects of its inclusion in the income of the custodial parent. It constitutes the second component of the award.

Component 2 = tax adjustment

Example

In this example, the tax implications of a monthly child support award of $195 on the custodial parent's income is $77.

6) Determine child care costs and extraordinary health expenditures and apportion between parents according to their gross income after the deduction of the self support reserve.

$$\text{Component 3} = \frac{(\text{income of non-custodial parent - \$6,280})}{(\text{income of non-custodial parent - \$6,280}) + (\text{income of custodial parent - \$6,280})} \times \text{child care costs \& extraordinary health expenses}$$

Example

$$\text{Non-Custodial Parent:} \quad \frac{\$40{,}000 - 6280}{(\$40{,}000 - 6280) + (\$20{,}000 - 6280)} \times \$150$$

$$= \$107$$

7) The total award is the total of the three components.

award = component 1 + component 2 + component 3

Example

Non-Custodial Parent: $195 + $77 + $107 = $379

The following chart outlines the different steps taken to calculate the child support award per month for the **non-custodial parent** using this same case scenario in combination with the Flat percentage with reserve guideline and the results from the four economic models.

	Consumption	**Adult Goods**	**Extended Engel**	**Blackorby/Donaldson**
Base Amount	$195	$267	$203	$428
Tax adjustment	$ 77	$106	$ 80	$204
Child Care	$107	$107	$107	$107
Total Award	$379	$480	$390	$739
minus Tax Deduction	$112	$154	$116	$260
Total Contribution	$267	$326	$274	$479

Thus, the range of the child support award is from $379 to $739.

F. AUSTRALIAN GUIDELINES

Australia has undertaken a major reform of its system to determine and enforce child support. Awards are now established in accordance with guidelines and are collected by the Income Tax Department through employers.

The Australian guidelines have combined specific elements of the three basic American guidelines. From the Income Shares guideline it adopts the principle of using both parent's incomes, and the established percentages are based upon research examining family spending on children. However, the determined percentages do not decrease as income rises as in the Income Shares, but rather, the percentages remain constant in different income categories as in the flat percentage of income model. The Australian guidelines also adopt the concept of the parental reserve put forward by the Delaware Melson guideline. However, contrary to the Delaware Melson guideline, children's primary needs are not specified in the Australian guideline but are simply a percentage of the parents' remaining income after subtracting the self-support reserve.

There are six child support formulae in Australia. Selection of a formula depends upon the financial circumstances of the family. There is a separate guideline to deal with each of the following situations:

1. Where the custodial parent has sole daily care of all the children and has an income below average weekly earnings. (Average annual earnings in Australia are $26,125 Australian, $1 Cdn is worth approximately .90 Australian).
2. Where the non-custodial parent has an obligation to support his or her natural or adopted children.
3. Where the custodial parent's taxable income is above average weekly earnings.
4. Where there are split and/or shared custody arrangements.
5. Where the custodian is not a parent in order to assess how much each parent will be required to pay.
6. Where the non-custodial parent is required to pay support to several custodial parents.

If the gross income of the custodial parent is below the average yearly earnings, formula 1 would be applied. Formula 1 would yield child support awards which are identical to those arrived at using the flat percentage with reserve guideline (Guideline E). For the purposes of illustration, we tested formula 3 where the custodial parent's gross income is above average weekly earnings ($27,112 in 1991).[26] In order to use this formula, the scenario has been modified somewhat:

> *The gross incomes of the custodial parent and non-custodial parent are $30,000 and $60,000 respectively. They have two children between the ages 0-6 and 7-12. The total child care costs are $550.*

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[26] Statistics Canada Labour Division, 1991.

The Australian Formula 3, as applied to Canada, would operate as follows:

1) Determine gross income of non-custodial and custodial parents.

Example

Custodial Parent:	Gross income = $30,000
Non-Custodial Parent:	Gross income = $60,000

Total Parental Income = $90,000

2) Subtract self-support reserve ($6,280 for 1991) from the gross income of the non-custodial parent. This is the **non-custodial parent's adjusted income.**

Adjusted income = income of non-custodial parent - 6280

Example

Non-Custodial Parent: $60,000 - $6,280 = $53,720

3) Calculate the **disregarded income of the custodial parent** by adding the child's basic need ($3,140 for each child) to the average yearly earnings.

Disregarded income = $27,112 + ($3,140 x number of children)

Example

Custodial Parent: $27,112 + ($3,140 x 2) = $33,392

4) Subtract the disregarded income from the gross income of the custodial parent. This is the **adjusted income of the custodial parent.**

Adjusted income = income of custodial parent - ($27,112 + $3,140 x number of children)

Example

Custodial Parent: $30,000 - $33,392 = -$3,392 or $0

5) Subtract the adjusted income of the custodial parent from the adjusted income of the non-custodial parent's income.

[income of non-custodial parent - 6280] - [income of custodial parent - ($27,112 + $3,140 x number of children)]

Example

$53,720 - $0 = $53,720

6) Multiply this amount by the average percentage of expenditures on children from the table. This constitutes component 1 of the award.

Component 1 = (income of non-custodial parent - $6,280) - [income of custodial parent - ($27,112 + $3,140 x number of children)] x percentage of expenditures on children

Example

The average percentage of expenditure data on children established by the consumption model for two children is 10.35%. (See Table 10).

Non-Custodial Parent: $53,720 x 10.35% = $5,560 per year or $463 per month

7) The tax calculation is effected and the required adjustment is made to compensate the custodial parent for the amount he or she will have to pay in taxes. The tax adjustment is based on the sum of component 1 and the effects of inclusion on the income of the custodial parent. It constitutes the second component.

Component 2 = tax adjustment

Example

In this example, the tax implications of a monthly child support award of $463 on the custodial parent's income is $479.

8) Determine child care costs and extraordinary health expenditures and apportion between parents according to their gross income after deducting the self-support reserve.

$$\text{Component 3} = \frac{\text{income of non-custodial parent} - \$6{,}280}{(\text{income of non-custodial parent} - \$6{,}280) + (\text{income of custodial parent} - \$6{,}280)} \times \text{child care costs \& extraordinary health expenses}$$

Example

Non-Custodial Parent:
$$\frac{\$60{,}000 - \$6{,}280}{(\$60{,}000 - \$6{,}280) + (\$30{,}000 - \$6{,}280)} \times \$550$$

$$= \$382$$

9) The total child support award is the total of the three components.

$$\text{award} = \text{component 1} + \text{component 2} + \text{component 3}$$

Example

Non-Custodial Parent: $463 + $479 + $382 = $1,324

The following chart outlines the different steps of the child support award per month for the **non-custodial parent** using this same case scenario in combination with the Australian Guideline - Formula 3 and the results from the four economic models.

	Consumption	**Adult Goods**	**Extended Engel**	**Blackorby/Donaldson**
Base Amount	$ 463	$ 623	$ 436	$ 995
Tax adjustment	$ 479	$ 590	$ 430	$ 873
Child Care	$ 382	$ 367	$ 367	$ 367
Total Award	$1,324	$1,579	$1,233	$2,234
minus Tax Deduction	$ 409	$ 508	$ 365	$ 777
Total Contribution	$ 915	$1,071	$ 868	$1,457

Thus, the range of the child support award is from $1,233 to $2,234.

G. THE INCOME EQUALIZATION MODEL

Dr. Judith Cassetty[27] developed this model, which has been widely discussed in the United States, but not adopted by any jurisdiction.

The goal of this model is to ensure that children suffer the least reduction possible in their standard of living as a consequence of the family breakdown. Another principle behind this approach is that the children's standard of living cannot be disassociated from the custodial parent's standard of living. The model, therefore, seeks to equalize the standards of living of both custodial and non-custodial households.

Under this approach, a poverty level of support is allocated to every member of both households. All remaining income is redistributed proportionally in accordance with the number of persons in each household. New spouses' income is considered in the determination of the award. Since the object of this model is to redistribute the resources between families, this model is known as resource-sharing. It should be noted that this model does not require information on expenditures on children. Rather, the disposable income of both households is redistributed based on the resources available and the pre-established basic needs of both parents and children.

Although this model has not been adopted anywhere, certain American states have adopted particular elements of the model. For example, by way of judicial discretion, the courts in some states are able to adjust the amount of support where the two households have great disparities in their standards of living.[28]

Under this model the support award is determined as follows:

1) Determine the gross income of non-custodial and custodial parents.

Example

Non-Custodial Parent:	Gross Income = $40,000
Custodial Parent:	Gross Income = $20,000

Total Parental Income: $60,000

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[27] Judith Cassetty, G.K. Sprinkle, Ralph White and Bill Douglas, The ELS (Equal Living Standards) Model For Child Support Awards, from Essentials of Child Support Guidelines Development, Economic Issues and Policy Considerations, Proceedings of the Women's Legal Defense Fund's National Conference of the Development of Child Support Guidelines, May, 1987, p. 335-336.

[28] This is the case in Tennessee, Vermont, New York and the District of Columbia.

2) Determine the cost of living of the custodial parent and the non-custodial parent. For the purposes of this exercise the cost of living per adult is deemed to be $6,280 and $3,140 per child.

Cost of living = ($6,280 x number of adults) + ($3,140 x number of children)

Example

In addition to assuming that the cost of living for one adult is $6,280 and $3,140 per child, we are also assuming in this case scenario, that the non-custodial parent is cohabiting with another adult who earns the same annual income as the custodial parent ($20,000). The income of the non-custodial parent is therefore $60,000 ($40,000 + $20,000). The custodial parent is living alone with the child.

Non-Custodial Parent: $6,280 x 2 = $12,560
Custodial Parent: $6,280 + $3,140 = $9,420

3) The base amount of support is determined by the following formula:

$$\text{Base Amount of Support} = \frac{(\text{cost of living of custodial parent} \times \text{income of non-custodial parent}) - (\text{cost of living of non-custodial parent} \times \text{income of custodial parent})}{\text{cost of living of custodial parent} + \text{cost of living of non-custodial parent}}$$

Example
Non-Custodial Parent:

$$\frac{(\$9{,}420 \times \$60{,}000) - (\$12{,}560 \times \$20{,}000)}{\$9{,}420 + \$12{,}560} = \$14{,}286 \text{ per year or } \$1{,}190 \text{ per month}$$

4) The tax calculation is effected and the required adjustment is made in favour of the custodial parent. The tax adjustment is based on the sum of the base amount.

Example
The tax implication of a monthly support award of $1,190 on the custodial parent's income is $840.

5) The support award per month is the sum of the base amount plus the tax adjustment.

Total Award = Base Amount + Tax Adjustment

Example
Non-Custodial Parent: $1,190 + $840 = $2,030

It is important to note that the gross incomes of the two parents should be adjusted to the gross household incomes if the custodial or non-custodial parent starts or stops living as husband and wife with someone.[29]

The following tables present an overview of the results of the various guidelines for each case scenario in combination with the four economic models.

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[29] In the income equalization guideline, if the non-custodial parent was living alone, the support award would be $2,272.

Table 11 Scenario 1

Non-custodial Parents' Monthly Child Support Awards[30]
by Guideline and Model (in Dollars and percent of monthly gross income and net income)

Gross Income of Custodial Parent: $20,000
Gross Income of Non-custodial Parent: $40,000
Number of Children: 1 age 7-12

Model	Consumption			Adult Goods			Extended Engel			Blackorby/Donaldson		
Guideline	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %
Income Shares	383	11.5	16.3	598	17.9	25.4	427	12.8	18.2	830	24.9	35.3
Income Shares with reserve	407	12.2	17.3	643	19.3	27.3	456	13.7	19.4	915	27.5	38.9
Delaware (Melson)	648	19.4	27.5	777	23.3	33.0	672	20.2	28.6	1,105	33.1	47.0
Flat Percentage	422	12.7	17.9	552	16.6	23.5	435	13.1	18.5	879	26.4	37.4
Flat Percentage with reserve	379	11.4	16.1	480	14.4	20.4	390	11.7	16.6	739	22.2	31.4
Australian[31]	379	11.4	16.1	480	14.4	20.4	389	11.7	16.5	739	22.2	31.4

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[30] This amount includes an adjustment for the child care costs and the tax implications as demonstrated in the previous pages. The table does not show the value of the award for the non-custodial parent once the deduction is calculated.

[31] Because the income of the Custodial Parent is below the average yearly earnings, Australian Formula #1 would be used in this case scenario.

In summary, as indicated in Table 11, the amount of the child support award ranges from **$383** (if the income shares guideline in combination with the Consumption model is used) to **$1,105** (or $2,030 if the income equalization guideline is used). For other variations of family compositions for the Income Equalization Guideline see Appendix 1. These figures represent between 11.5% to 33.1% of the non-custodial parent's monthly gross income (or 60.9% in the income equalization model).

The following tables present the results of applying the various guidelines in combination with the economic models to five additional case scenarios. A summary of the calculations for each scenario can be found in Appendix 1.

Table 12 Scenario 2
Non-custodial Parents' Monthly Child Support Awards[32]
by Guideline and Model (in Dollars and percent of monthly gross income and net income)

Gross Income of Custodial Parent: $30,000
Gross Income of Non-custodial Parent: $60,000
Number of Children: 2 ages 7-12 and 0-6

Model	Consumption			Adult Goods			Extended Engel			Blackorby/Donaldson		
Guideline	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %
Income Shares	1,104	22.1	33.2	1,579	31.6	47.5	1,223	24.5	36.8	2,234	44.7	67.2
Income Shares with reserve	1,145	22.9	34.4	1,641	32.8	49.4	1,281	25.6	38.5	2,318	46.4	69.7
Delaware (Melson)	1,923	38.5	57.8	2,212	44.2	66.5	1,888	37.8	56.8	2,710	54.2	81.5
Flat Percentage	1,384	27.7	41.6	1,755	35.1	52.8	1,338	26.8	40.2	2,332	46.6	70.1
Flat Percentage with reserve	1,299	26.0	39.1	1,631	32.6	49.0	1,258	25.2	37.8	2,160	43.2	65.0
Australian	1,324	26.5	39.8	1,666	33.3	50.1	1,282	25.6	38.6	2,202	44.0	66.2

In the Income Equalization Guideline, if the non-custodial parent were living alone, the support award would be $4,661. For other variations on the family composition of the non-custodial parent, see Appendix 1.

As this table indicates, the child support awards could range from $1,104 to $2,710.

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[32] In this table and for the following ones, the amount shown includes an adjustment for the child care costs and the tax implications. **It does not show the amount of the tax deduction or the real value of the award for the non-custodial parent once the deduction is calculated.**

Table 13 Scenario 3
Non-custodial Parents' Monthly Child Support Awards by Guideline and Model (in Dollars and percent of monthly gross income and net income)

Gross Income of Custodial Parent: $50,000
Gross Income of Non-custodial Parent: $50,000
Number of Children: 3 ages 7-12 and 13-17

Model	Consumption			Adult Goods			Extended Engel			Blackorby/Donaldson		
Guideline	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %
Income Shares	1,398	33.6	49.2	1,398	33.6	49.2	1,180	28.3	41.5	2,271	54.5	79.9
Income Shares with reserve	1,398	33.6	49.2	1,398	33.6	49.2	1,180	28.3	41.5	2,271	54.5	79.9
Delaware (Melson)	1,863	44.7	65.5	2,088	50.1	73.4	1,732	41.6	60.9	2,604	62.5	91.6
Flat Percentage	1,325	31.8	46.6	1,595	38.3	56.1	1,169	28.1	41.1	2,224	53.4	78.2
Flat Percentage with reserve	1,187	28.5	41.7	1,419	34.1	49.9	1,050	25.2	36.9	1,969	47.3	69.2
Australian	884	21.2	31.1	1,051	25.2	37.0	779	18.7	27.4	1,422	34.1	50.0

In the Income Equalization Guideline, if the non-custodial parent were living alone, the support award would be $3,573. For other variations on the family composition of the non-custodial parent, see Appendix 1.

As this table indicates, the child support awards could range from $779 to $2,604.

Table 14 Scenario 4
Non-custodial Parents' Monthly Child Support Awards
by Guideline and Model (in Dollars and percent of monthly gross income and net income)

Gross Income of Custodial Parent: $20,000
Gross Income of Non-custodial Parent: $70,000
Number of Children: 4 ages 13-17, 7-12 and 0-6

Model	Consumption			Adult Goods			Extended Engel			Blackorby/Donaldson		
Guideline	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %
Income Shares	2,345	40.2	62.2	2,390	41.0	63.4	1,983	34.0	52.6	3,683	63.1	97.8
Income Shares with reserve	2,476	42.4	65.7	2,524	43.3	67.0	2,096	35.9	55.6	3,907	67.0	103.7
Delaware (Melson)	3,656	62.7	97.0	3,899	66.8	103.5	3,325	57.0	88.2	4,777	81.9	126.8
Flat Percentage	2,340	40.1	62.1	2,606	44.7	69.2	1,968	33.7	52.2	3,620	62.1	96.1
Flat Percentage with reserve	2,182	37.4	57.9	2,425	41.6	64.4	1,834	31.4	48.7	3,323	57.0	88.2
Australian	2,182	37.4	57.9	2,425	41.6	64.4	1,834	31.4	48.7	3,323	57.0	88.2

. In the Income Equalization Guideline, if the non-custodial parent were living alone, the support award would be $7,882. For other variations on the family composition of the non-custodial parent, see Appendix 1.

As this table indicates, the child support awards could range from $1,834 to $4,777.

Table 15 Scenario 5
Non-custodial Parents' Monthly Child Support Awards
by Guideline and Model (in Dollars and percent of monthly gross income and net income)

Gross Income of Custodial Parent: $40,000
Gross Income of Non-custodial Parent: $30,000
Number of Children: 2 ages 13-17 and 7-12

Model	Consumption			Adult Goods			Extended Engel			Blackorby/Donaldson		
Guideline	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %
Income Shares	620	24.8	33.1	697	27.9	37.2	497	19.9	26.5	970	38.8	51.8
Income Shares with reserve	598	23.9	31.9	673	26.9	35.9	479	19.2	25.6	937	37.5	50.0
Delaware (Melson)	745	29.8	39.7	871	34.8	46.5	731	29.2	39.0	1,081	43.2	57.7
Flat Percentage	480	19.2	25.6	664	26.6	35.4	457	18.3	24.4	948	37.9	50.6
Flat Percentage with reserve	380	15.2	20.3	526	21.0	28.1	361	14.4	19.6	762	30.5	40.7
Australian	274	11.0	14.6	380	15.2	20.3	260	10.4	13.9	557	22.3	30.8

In the income equalization guideline, if the non-custodial parent were living alone, the support award would be $999. For other variations on the family composition of the non-custodial parent, see Appendix 1.

As this table indicates, the child support awards could range from $274 to $1,081.

Table 16 Scenario 6
Non-custodial Parents' Monthly Child Support Awards by Guideline and Model (in Dollars and percent of monthly gross income and net income)

Gross Income of Custodial Parent: $10,000
Gross Income of Non-custodial Parent: $10,000
Number of Children: 1 age 0-6

Model	Consumption			Adult Goods			Extended Engel			Blackorby/Donaldson		
Guideline	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %	$	Gross %	Net %
Income Shares	217	26.0	28.1	333	40.0	43.2	244	29.3	31.6	305	36.6	39.5
Income Shares with reserve	217	26.0	28.1	333	40.0	43.2	244	29.3	31.6	305	36.6	39.5
Delaware (Melson)	350	42.0	45.4	357	42.8	46.3	351	42.1	45.5	371	44.5	48.1
Flat Percentage	258	31.0	33.5	279	33.5	36.2	260	31.2	33.7	328	39.4	42.5
Flat Percentage with reserve	221	26.5	28.7	229	27.5	29.7	222	26.6	28.8	247	29.6	32.0
Australian	221	26.5	28.7	229	27.5	29.7	222	26.6	28.8	247	29.6	32.0

In the Income Equalization Guideline, if the non-custodial parent were living alone, the support award would be $178. For other variations on the family composition of the non-custodial parent, see Appendix 1.

As this table indicates, the child support awards could range from $217 to $371.

CHAPTER 3
APPLICATION OF GUIDELINES TO DIFFERENT ECONOMIC MODELS

The object of this chapter is to present the analysis of the different economic models of expenditures on children and to indicate how these amounts would be applied within child support guidelines. An evaluation of the different economic models and guidelines is presented. This evaluation is based on the results of the application of the guidelines to the economic models.

For ease of reading, the actual simulations are presented in the Appendices. Appendix 2 presents the results of the four different economic models used to determine estimates of annual expenditures on children at selected family income levels and by number of children. Appendix 3 presents general technical details of the simulations. Appendix 4 applies the results of the economic models to the different child support guidelines at various income levels. Child care expenses and income tax implications are not included in the analysis.

3.1 Method of Simulation

Simulations were performed using the four **economic models** for estimating expenditures on children and the seven **guidelines** for calculating child support awards. Different factors or independent variables are considered in the simulation and they include the following:

- gross income of the custodial parent
- gross income of the non-custodial parent
- total number of children
- age of the children specified in 3 age groups: 0-6, 7-12, 13-17.

The values used in the present simulation were: (a) gross income of \$10,000 to \$70,000 (in \$5,000 intervals) for each of the parents, and (b) total number of children from 1 to 4, with all combinations of age of children. The total number of combinations examined was 5,746.[33]

Based on the four (4) economic models and seven (7) guidelines, four average percentages of expenditures on children and 28 child support awards were calculated for each of the 5,746 combinations of the independent variables. They were tabulated and analyzed. The economic models and the guidelines are then evaluated based on the analysis.

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[33] The computer program is written in SAS (Statistical Analysis System) and can easily accommodate different ranges of values.

For other details concerning the simulation, such as the parameters used in the formulae, see Appendix 3.

3.2 Criteria of Evaluation

The following criteria were established to evaluate the results of the economic models (for estimating expenditures on children) and the guidelines (for calculating child support awards). These are described below in relation to the objectives proposed for child support in the June, 1991 Discussion Paper (see page 7):

Objective 1: Yield adequate and equitable levels of child support

This objective is discussed thoroughly in Section 3 of the June 1991 Discussion Paper. Clearly, no final analysis of this objective can be undertaken until the consultation process is completed.

Objective 2: Produce amounts which are objectively determinable, consistent and predictable

All of the guidelines meet this objective, in comparison to a non-guideline (i.e. discretionary) approach.

Objective 3: Ensure flexibility to account for a variety of circumstances

Consistency: whether there are discontinuities (data breaks)[34] in the simulated values. For example, a model will be evaluated as not consistent if the estimated expenditures on one child are $100 per month while the estimated expenditures on two children are $400 per month. Similarly, a guideline will be evaluated as not consistent if the calculated child support awards vary widely.

Robustness: whether the model or the guideline can accommodate a wide spectrum of combinations of incomes and children. For example, a model will be evaluated as not robust if the estimated expenditures on children can assume negative values within a certain range of family incomes. Similarly, a guideline will be evaluated as not robust if the child support awards are calculated to be negative.

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[34] (i.e., there is a dramatic increase in child support payments with only a slight increase in the total gross income).

Absence of extreme values: whether the output values contain extremes or not. Extreme values may produce unreliable results. Thus, for example, a model will be evaluated as not reliable if the estimated expenditures on one child are extremely low (e.g., below $30 per month) or extremely high (e.g., over 80% of the gross family income). Similarly, a guideline will be evaluated as not reliable if the child support award is unreasonably high.

Objective 4: Be understandable and inexpensive to administer

Simplicity: whether the principles used in the model or the guideline can be easily comprehended by non-economists.

Amount of data required: whether the model or the guideline can be applied with a minimal amount of data.

3.3 Evaluation of Economic Models for Estimating Expenditures on Children

Comparative tables of estimated expenditures on children can be found in Appendix 2. It should be noted that costs for child care are not included in the estimated expenditures. It is expected that individual expenditures on child care will be added to the total child's costs before apportioning between the parents. Thus the total expenditures on children would be higher for families who have to incur such costs.

A. Consumption Model

Based on this model, the estimated expenditures are generally the second lowest of the four economic models. The model would produce the lowest child support awards for families with low gross family income and low number of children.

In some instances, the estimated expenditures may even assume negative values. For example, if the family income is $10,000, the estimated expenditures for a child aged 6 or younger will be -$4 a month.

Overall, this model is simple, consistent, and requires no extra amount of data. However, it is not robust and generally yields low values.

B. Adult Goods Model

Based on this model, the estimated expenditures are generally the second highest of the four economic models. The model would produce the highest child support awards for families with low gross family income, irrespective of the number of children. On the other hand, the model would produce the lowest child support awards for families with high gross family income and low number of children, particularly when the children are older.

Overall, this model is simple, consistent, robust, and does not require extra amount of data. However, this model may produce low estimated expenditures for cases with one or two teenage children.

C. Extended Engel Model

Based on this model, the estimated expenditures are generally the lowest of the four economic models. This is particularly true for families with a high number of children.

Overall, this model is simple, consistent, robust, does not require an extra amount of data. However, it often yields the lowest values.

D. Blackorby/Donaldson Model

Based on this model, estimated expenditures on children are generally the highest of the four economic models. This is particularly true for families with high gross family income, irrespective of the number of children.

In some instances, the child support awards based on this model can be as high as 50% of the gross income of the non-custodial parent for four children. The high estimates arise mainly from the apportioning of the housing costs, as all members of the family are assumed to share equally in the total housing costs.

Overall, this model is consistent, robust, but is not simple, it requires more data than other economic models, and will yield higher values than the other models.

3.4 Evaluation of Guidelines for Calculating Child Support Awards

The technical details of the seven guidelines used to calculate child support awards are described in Appendix 1. Comparative tables of child support awards can be found in Appendix 3. The following comments on the different guidelines are made before looking at the effect of individual child care costs, extraordinary health expenditures and tax implications on the support award.

A. Income Shares

This guideline yields child support awards which are in proportion to the income of the two parents. It is straightforward and is easy to explain. With the exception of the flat percentage guideline (Guideline D), the calculation is the easiest.

Overall, this guideline is simple, consistent, robust, does not yield extreme values, and does not require an extra amount of data.

B. Income Shares with Reserve

This guideline yields child support awards similar to the income shares guideline (Guideline A). The only difference is that the effect of income will be magnified slightly; that is, the parent with the higher income of the two will be responsible for a bigger share of the expenditures on children. Thus, if the non-custodial parent has a higher income than the custodial parent, the proportionate share will be higher, and vice versa. This magnifying effect will increase if a higher dollar amount is attributed to the self support reserve.

Because of this, a non-custodial parent with a very low income will be responsible for a very small share of the total expenditures on children, in some cases less than 20%.

One theoretical concern relating to this guideline is that the percentages derived from the economic models are based on gross income and consequently should be applied to gross income only, not to income after deduction of the self-support reserve.

Overall, this guideline is consistent, robust, and does not yield extreme values. However, the guideline is slightly more complicated than the income shares guideline and requires a determination of the value of the self-support reserve.

C. Delaware Melson

This guideline yields the second highest child support awards from the non-custodial parent because of the aggregation of two components in the awards, the sharing of basic needs of the children plus the cost of living adjustment. If a high dollar amount is attributed to the child's basic needs, the calculated award from the non-custodial parent may even be higher than the total estimated expenditures on the children provided by the economic research.

Overall, this guideline is consistent but not robust, yielding high values (but lower than income equalization guidelines), and requiring additional information on the dollar amount for the self-support reserve and the child's basic needs, as well as the average percentage of gross family income spent on children. In addition, while this guideline may be theoretically sound, it is more difficult to explain, in particular the standard of living adjustment component.

D. Flat Percentage

This guideline will generally yield child support awards close to the income shares guideline (Guideline A).

Overall, this guideline is the most straightforward of the seven, and is the easiest guideline to apply in terms of the amount of calculation required. It is also consistent, robust, does not yield extreme values, and does not require extra amount of data.

E. Flat Percentage with Reserve

This guideline will in most cases yield the second lowest child support awards.

Overall, this guideline is consistent and robust. It is simple although slightly more complicated than the flat percentage guideline (Guideline D). It yields low values and requires additional information on the dollar amount of the self-support reserve. In addition, the theoretical concern is that the percentages from the economic models are derived from gross income and consequently should be applied to gross income only, not to income after deduction of the self-support reserve.

F. Australian

This guideline will generally yield the lowest child support awards. If the income of the custodial parent is low, this guideline is the same as the flat percentage with reserve guideline (Guideline E). If the custodial parent earns more than the non-custodial parent, the child support awards will be even lower. On the other hand, if the non-custodial parent earns more than the custodial parent, the child support awards will be similar to those calculated from the income shares guideline (Guideline A).

Overall, this guideline is the most complicated of all guidelines because there are in fact two guidelines, depending on whether the income of the custodial parent is above or below the average yearly earnings. In addition, this guideline is not robust (as it may occasionally yield negative child support awards), not consistent, yields extreme values, and requires more additional information than any other guideline.

G. Income Equalization

This guideline will yield the highest estimated support awards if the non-custodial parent has a much higher income than the custodial parent. However, this is only true if the non-custodial parent does not have subsequent dependents. If the non-custodial parent has dependents (spouse and/or children) from a subsequent relationship, then the estimated awards may be much lower than the other guidelines. In some instances, the awards may even assume negative values.

Overall, the guideline is not simple and is difficult to explain. It is not consistent, as the calculated support awards vary widely with different income profiles. It is not robust, yielding extreme values, and it requires additional information on the dollar amount for the cost of living component.

CHAPTER 4
TAX IMPLICATIONS OF CHILD SUPPORT PAYMENTS

This chapter will give an overview of the current Canadian tax system and policy with respect to child support payments. This policy enables payors of support to deduct from taxable income the full amount of qualifying support payments and obliges support recipients to report these payments as income on which they are taxed. As well, an examination of the different tax credits available to custodial parents will be presented. Certain effects of the present income tax system on child support awards and the problems of applying the current system to child support guidelines will then be identified.

4.1 Overview of the Canadian Tax System with Respect to Child Support

The policy of inclusion and deduction of support payments was developed in 1942, when personal income tax rates were rapidly rising as a consequence of the war. Since then, the policy has been subject to several amendments including the addition of a criterion that these payments be of a periodic nature. A broadening of the policy has also been implemented to include support payments made pursuant to written agreements, as well as those made to third parties and former common-law spouses.

There are a number of policy considerations for the deduction of support payments by the payer and inclusion of these amounts as taxable income to the recipient. The rationale for this policy has been provided by the Department of Finance. First, it is a principle of taxation that, where a deduction has been claimed by a payor in respect of a payment, the recipient of that payment should pay income tax on it. Second, by requiring support recipients to include the amount of child support within their income, the system recognizes the basic principle of fairness that tax payers with the same incomes from different sources should pay the same amount of tax. Third, the tax assistance offered by the deduction may provide an incentive for the payer to make regular and complete payments.[35] Fourth, the tax treatment provides a subsidy which benefits the children since it encourages higher support payments.

When the policy was developed, the majority of support payors were in a higher tax bracket than the recipients. Since a dollar of support payment gives rise to a greater tax reduction to the payer than tax increase to the recipient, the deduction lowers the combined federal plus provincial taxes of the separated couple and may provide an incentive for the payer to increase the support payments. However, since the number of tax brackets have been reduced, support creditors and debtors are not necessarily in different tax brackets although one may earn more than the other.

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[35] Despite this policy, Ontario recently announced that 75 per cent of support payers were in some default in the payment of support orders.

According to 1988 taxation statistics provided by Revenue Canada, about 60 per cent of support payers were in the top two tax brackets prior to the deduction of support payments. Almost 90 per cent of recipients were either non-taxable or in the lowest tax bracket. After the deduction/inclusion of child support, 50 per cent of payers remain in the top two brackets, while 80 per cent of recipients remain non-taxable or in the lowest tax bracket. Again, these figures demonstrate the great disparity of income between support recipients (who are mostly women with children)[36] and support payers (who are mostly men). This evidence also suggests that, in the large majority of cases, there may be some need for sharing the tax savings from the deduction of support payments with the children.

Clearly, the impact of the tax system on support payments is significant and cannot be ignored by those who help negotiate and those who determine support orders. Indeed, the combined federal and provincial tax subsidy for support payments, net of tax paid by recipients, is about $250 million annually.[37]

The tax system provides tax assistance to the custodial parent, by giving that parent the possibility of including the equivalent-to-married tax credit (only if the custodial parent does not remarry), the child tax credit, the GST child credit and a deduction for child care expenses. Family allowances are also available to this parent.

Paragraphs 60(b)(c)(c.1) and 56(1)(b)(c)(c.1) are the relevant provisions of the Income Tax Act (ITA),[38] which specify that support payments must be included in the income of the recipient and may be deducted from the income of the payer.

The ITA classifies support in two categories, namely "maintenance" and "alimony". Essentially, the difference between the two categories is that "alimony" requires that the couple be more than informally separated. For example, they would have signed a separation agreement, obtained a judicial separation or obtained a divorce and, live apart. Although this Report focuses on child support, the provisions of the ITA regarding maintenance and alimony apply to either child or spousal support.

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[36] According to the Divorce Act Evaluation, women were awarded sole custody of the children in three-quarters of the cases, and in 98 per cent of the cases, the direction of support is from the father to the mother.

[37] Figure provided by the Department of Finance.

[38] S.C. 1970-71-72, c.63 as amended (hereinafter referred to as the "ITA").

Pursuant to paragraph 60(b) of the ITA, support payments made to a spouse or former spouse are deductible if the following requirements are met:

> "(a) the amount is paid as alimony or other allowance for the maintenance of the spouse or former spouse, children of the marriage, or both;
>
> (b) the spouses or former spouses are living apart at the time the payment is made and throughout the remainder of the year and were separated pursuant to a divorce, judicial separation, or written separation agreement;
>
> (c) the amount is paid pursuant to a decree, order, or judgment of a competent tribunal or pursuant to a written agreement; and
>
> (d) the amount is payable on a periodic basis."[39]

Where the support payments have been received, they must be included in the recipient spouse's income.[40]

For the purposes of paragraph 60(c), "maintenance" is paid where the spouses have not undergone a divorce, or judicial separation or entered into a written separation agreement but where the spouses are living apart and one spouse has an obligation pursuant to a court order to pay support to the other, for the maintenance of the recipient or the child of the recipient. For example, "maintenance" would be paid where the parties are engaged in divorce proceedings where the divorce has not yet been granted but the court has ordered interim support.

Maintenance payments made to a separated spouse are deductible under paragraph 60(c) of the ITA if the following requirements are met:

> "(a) the amount is paid as an allowance for the maintenance of the spouse, children of the spouse, or both;
>
> (b) the spouses are living apart at the time the payment is made and throughout the remainder of the year;
>
> (c) the amount is paid pursuant to an order of a competent tribunal; and

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[39] Interpretation Bulletin IT-118R3, December 21, 1990.

[40] Paragraph 56(1)(b) of the ITA.

(d) the amount is payable on a periodic basis."[41]

The above requirements must also be met for a payer to deduct maintenance payments made to a former common-law spouse according to paragraph 60(c.1). A common-law spouse is defined as an individual of the opposite sex who, before the date of the order, cohabited with the recipient in a conjugal relationship, or is the natural parent of a child of the recipient. This provision would therefore be applied to child support where the child's parents were never married.

Maintenance payments which have been received must be included as income by the recipient spouse[42] or common-law spouse[43].

Where the recipient spouse, former spouse or former common-law partner is a non-resident, the support payments are subject to non-resident tax in accordance with paragraph 212(1)(f) of the ITA. In such cases an amount of approximately 25 % is retained from the Canadian tax payer who receives the deduction on the full amount paid. However, the laws of the jurisdiction governing the recipient spouse's tax situation may credit him or her with the equivalent or a portion of the tax depending on their income tax policy.

However, if the support recipient lives in Canada but the support payer resides in another country, depending on the country of residence and whether that country is party to a special Convention with Canada, the support recipient may not have to include the amount of support received in his or her income.

Third party payments, under certain conditions, may receive treatment similar to regular support payments under the Income Tax Act. These are payments made to a third party for the benefit of the spouse, former spouse, or child in the custody of the spouse or former spouse. For example, such amounts could be disbursed in respect of the family home (mortgage payments, rent, utilities, insurance), tuition fees, medical expenses, etc.

A deeming provision found under subsection 60.1(1) allows the payer to obtain a deduction for support payments made to third parties where the requirements of paragraphs 60(b), (c) or (c.1) are otherwise met.

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[41] Ibid.

[42] Paragraph 56(1)(c) of the ITA.

[43] Paragraph 56(1)(c.1) of the ITA.

Subject to certain conditions, where the third party payments do not qualify under paragraphs 60(b), (c) or (c.1) as an "allowance" which is "periodic" or which is "received" by the supported person, a second deeming provision in subsection 60.1(2) authorizes the deduction of the third party payments as long as the agreement or order specifically refers to the intention to have subsection 60.1(2) and 56.1(2) apply.

The deduction of any third party payments requires their inclusion in the deemed recipient's income.[44]

4.2 Tax Credits Available to the Custodial Parent

A number of credits in regards to a child are usually available to a custodial parent. However, several factors may reduce or nullify the value of such credits. Among these factors are: the income of the custodial parent, his or her marital status, the age of the child, and the child's income. For these reasons the custodial parent's tax credits are not normally subject to negotiations between the parents. Moreover, it is likely that many of the credits would be unavailable to the intact couple. Pursuant to subsection 118(5) of the ITA, the following non-refundable tax credits are granted to custodial parents who must include support payments in their income.[45]

Paragraph 118(1)(b) of the ITA enables divorced or separated parents to claim the spousal equivalent credit (or equivalent-to-married credit) for one[46] child if the following requirements are met:

(1) the taxpayer must be unmarried; or

(2) if the taxpayer is married, the taxpayer must neither support nor live with his or her spouse and must not be supported by his or her spouse;

(3) the taxpayer must either jointly or alone maintain a self-contained domestic establishment in which the taxpayer lives and supports a related person[47] who is wholly dependent upon the taxpayer, or the taxpayer and the other person or persons maintaining the establishment; and

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[44] Section 56.1 of the ITA.

[45] 1991 figures are used in representing the tax consequences for the custodial parent.

[46] Only one tax credit per household is allowed, so that additional children may be claimed under the dependant child credit.

[47] Persons related to each other are individuals connected by blood, marriage or adoption.

(4) the dependant must either be under 18 years of age or dependent by reason of a mental or physical infirmity, except in the case of a parent or grandparent of the taxpayer.

The maximum amount of the equivalent-to-married credit (E.T.M.) attributable to the child is valued at 17 percent of $5,233 or $889.61 in 1991. If the child's income for 1991 is $524 or less it will have no effect on the parents E.T.M. credit. Where the child's income for 1991 exceeds $525, the parent's E.T.M. credit is reduced by 17% of that excess. Thus the credit vanishes when the child's income reaches $5,758.

Paragraph 118(1)(d) of the ITA allows a parent who is paying support to claim a credit in respect of one or more children (other than a dependant for whom he or she may have claimed an E.T.M. credit) who are under the age of 18 at any time in the year. The credit is calculated by applying the appropriate percentage, 17 percent in 1991, to the amount obtained by subtracting the excess of the child's income over $2,617 from $406. If the child's income reaches $3,023, the credit is nil. Where there are more than two children, the reference to $406 in the formula is to be read as $812 for each subsequent child. The result is that the maximum credit allowed for each of the first two children is $69. The credit is doubled to $138 for the 3rd and each subsequent child.

A greater deduction is available to a spouse who supports a person who is dependant by reason of mental or physical infirmity and is over 18 years of age. In this case, the reference to $406 in the above formula is to be read as $1,540, the maximum credit amounting to $261.80.

Child care expenses incurred to permit a parent to pursue employment, business, training or research activities are deductible in the hands of the custodial parent.[48] The maximum deduction available is $4,000 per child under the age of 7 and $2,000 for children aged 7-13. No age limit is set where the child is disabled and a deduction of up to $4,000 is allowed.

The custodial parent may claim a refundable child tax credit for each eligible child.[49] The maximum credit is $792 for a child under the age of 7 years and $585 for a child 7 years of age or older, subject to a reduction according to the amount of child care costs deducted under section 63 and the excess of the custodial parent's income over $25,215.

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[48] Section 63 of the ITA.

[49] Paragraph 122.2(1) of the ITA. The 1992 Budget has proposed that this credit, together with Family Allowances and the dependant child credit, be replaced by a new child tax benefit to be paid on a monthly basis beginning in January, 1993. This credit will be based on family net income in a similar manner as a refundable tax credit and will incorporate a new earned income supplement of up to $500 for lower income families.

The refundable goods and services tax credit is paid quarterly to the custodial parent for each qualified dependant. The amount of the credit is $193 for the first dependant child and $102 for each subsequent child. An additional $102 is provided for a single parent (the living alone allowance). The credit is reduced by 5% of the excess of the parent's income over the income threshold of $25,215.

Medical expenses for a child may be deducted by the parent who may claim a dependant's credit.[50] The credit is 17 percent of qualifying medical expenses for the parent and the child in excess of the lesser of $1,570 or 3 percent of the parent's income.

Up to a maximum of $600 may be transferred by a child to a parent for the tuition and education credits which the child is unable to fully utilize.[51] Seventeen percent of eligible tuition fees and approximately $10 per month of attendance in a qualifying educational program are deductible from federal income tax otherwise payable.

4.3 Effects of the Income Tax System on Child Support Awards

Tax consequences should be considered by everyone involved in determining child support awards whether they are the result of agreements between the parties, negotiations between lawyers or determined by the courts. Although the tax consequences should be an element of every child support determination, there is evidence to suggest that these calculations may not always be made.[52] Moreover, where the tax consequences are considered, there are no formal guidelines showing how they should be taken into consideration.

Under the Divorce Act, parents have a joint financial obligation to support their children. That obligation should be apportioned between the spouses according to their relative abilities to contribute. Under provincial and territorial legislation, both married and unmarried parents have similar obligations towards their children. If tax consequences are not taken into account, the custodial parent assumes a much greater obligation than he or she expected. In such situations, custodial parents would have to pay income tax on all moneys received from non-custodial parents for the support of children. Non-custodial parents would therefore benefit from a deduction for their share of the support awards and custodial parents must make up for the loss they incur from their own income which may lead to hardship.

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[50] Paragraph 118.2(2)(a) of the ITA.

[51] Section 118.9 of the ITA.

[52] A survey of judges was conducted in February 1990 by Judge R. James Williams. 147 judges responded to this survey. The results indicate that only a minority of lawyers present income tax calculations to the courts where it would be appropriate to do so. Furthermore the survey shows that a majority of judges will not do their own tax calculations if they are not presented by counsel.

Judge R. James Williams, Child Support, An Update and Revision of Quantification of Child Support, (1989) 18 R.F.L. 234), May 2, 1990.

Negotiations and settlements occur in the majority of support determinations in Canada. In cases where support awards have been negotiated and agreed upon by the parties, it is impossible to determine how or whether the income tax implications have been taken into account. Whether income tax implications have been taken into account or not support payors are allowed to deduct the total support amount paid.

If tax implications are to be taken into account there are a number of issues to consider. There is no guidance in the Divorce Act, nor provincial or territorial legislation as to how the calculations should be made or how the benefit of the deduction should be shared between the parties.

In most cases, where the court has arrived at a specific amount for the child's needs, that amount will then be divided in proportion to each parent's income. Then, the non-custodial parent's share is increased to compensate the custodial parent for the tax that he or she will have to pay. The support payer would then deduct the total amount paid from his or her income, which may represent a greater tax benefit than the amount he actually paid to cover the tax which the custodial parent would have to pay. Where the tax implications have been dealt with in this way, the tax subsidy is often not passed on to the custodial parent for the children.

Where it is obvious that the parties do not have the means to cover the child's needs, the benefit of the deduction to the non-custodial parent may be raised as an incentive to slightly increase the amount of child support. However, there is no consensus or guidance as to how this deduction should be shared between the parties.

In order to ensure that the tax benefits are taken into account fairly, two extra steps would have to be performed in each child support determination: (1) the benefit of the deduction to the non-custodial parent would have to be determined and (2) the benefit should be divided between the parties. However, even if these two steps were applied, there remains the problem of how the benefit should be allocated between the parties. Arguments could be made that the benefit should be totally allocated to the child or that it should be divided equally between the parties or in proportion to both parents' share of the child's costs.

For custodial parents who are taxable, the responsibility of including the amount of support received within their income is another issue which deserves to be addressed. For custodial parents, saving the portion of the support payment that must be paid in income tax at the end of the year can be a significant burden. Although some may argue that this burden should not be recognized, custodial parents should be saving the portion of the award that applies to tax. In some cases, it is not financially possible to save this money each month without depriving the children. It is important to consider this issue in the context in which it actually occurs; namely that two-thirds of Canadian women and children live in poverty following divorce.[53] However, in certain cases, the Child Tax Credit and Goods and Services Tax Credit could offset the taxes that are payable.

Another important issue is that the tax implications of a support award may vary with the passage of time. Ideally, child support orders should be varied to reflect the parties' changing marginal rates as such changes occur. This would ensure that the parties continue to be responsible for the same proportion of the children's needs throughout the years. At present, the legal costs of seeking a variation of support orders could serve as a deterrent for such applications.

Should child support guidelines be developed, consideration should be given to the tax implications to ensure that the necessary calculations are being made and to specify how such calculations should be made. For example, specific tables could be provided to the parties, the lawyers and the courts, with direction on how to calculate the complete child support award including the tax implications. However, a prespecified table of income tax adjustments may not be appropriate where, for example, the payment of the child support would result in a change in the custodial parent's marginal tax rate. In such a case, specific calculations might still have to be made by the parties, the lawyers and the courts. Therefore, although child support guidelines seek to simplify and provide fairness in determining child support awards, under the present tax system the exercise will remain somewhat complex.

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[53] Department of Justice, Divorce Act Evaluation, May 1990.

CONCLUSION

The Family Law Committee hopes to receive constructive comments on the two public discussion papers.

Readers may wish to comment only on the issues of substance which were raised in the Child Support: Public Discussion Paper released in June, 1991. On the other hand, readers may also choose to comment on the different economic models presented, on the different types of child support guidelines, on the effects of combining the different economic models with the different guidelines and, on the income tax implications.

Written submissions may be sent to:

Child Support Project
Federal/Provincial/Territorial Family Law Committee
c/o Department of Justice
Room 758
239 Wellington Street
Ottawa, Ontario
K1A 0H8

and to your own provincial or territorial Attorney General's Department or Department of Justice.

Submissions should be received no later than October 11, 1992.

APPENDIX 1

RESULTS OF SELECTED SCEARNIOS

SCENARIO 2:

Monthly Gross Income of Custodial Parent	$ 2,500	($ 30,000 per annum)
Monthly Gross Income of Non-Custodial Parent	$ 5,000	($ 60,000 per annum)
Total Monthly Gross Income	$ 7,500	($ 90,000 per annum)

Number of Children: 2 Age of Children: 7-12 0-6

ESTIMATED MONTHLY EXPENDITURES ON CHILDREN BY ECONOMIC MODELS

	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
Base Amount	549	934	654	1,492
Child Care	550	550	550	550
TOTAL	1,099	1,484	1,204	2,042

MONTHLY CHILD SUPPORT AWARD

[Abbreviation: Cus.=Custodial Parent, Non-C=Non-Custodial Parent]

ECONOMIC MODEL >>>>>	[1]		[2]		[3]		[4]	
GUIDELINE	Consumption		Adult Goods		Extended Engel		Blackorby/ Donaldson	
[A] Income Shares								
	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	183	366	311	623	218	436	497	995
Tax Adjustment		371		590		430		873
Child Care	183	367	183	367	183	367	183	367
TOTAL AWARD		1,104		1,579		1,233		2,234
Tax Deduction (-)		312		508		365		777
Contribution	366	792	495	1,071	401	868	681	1,457
% of Income	14.7	15.8	19.8	21.4	16.1	17.4	27.2	29.1
[B] Income Shares with Reserve								
	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	168	381	286	648	200	454	457	1,035
Tax Adjustment		383		612		446		901
Child Care	168	382	168	382	168	382	168	382
TOTAL AWARD		1,145		1,641		1,281		2,318
Tax Deduction (-)		323		527		379		805
Contribution	337	822	454	1,114	369	902	626	1,513
% of Income	13.5	16.4	18.2	22.3	14.7	18.0	25.0	30.3
[C] Delaware Melson								
		Non-C		Non-C		Non-C		Non-C
Base Amount		789		953		768		1,229
Tax Adjustment		753		877		738		1,099
Child Care		382		382		382		382
TOTAL AWARD		1,923		2,212		1,888		2,710
Tax Deduction (-)		657		781		642		995
Contribution		1,266		1,431		1,246		1,715
% of Income		25.3		28.6		24.9		34.3

[D] Flat Percentage

	Non-C	Non-C	Non-C	Non-C
Base Amount	518	717	493	1,053
Tax Adjustment	500	671	479	913
Child Care	367	367	367	367
TOTAL AWARD	1,384	1,755	1,338	2,332
Tax Deduction (-)	427	580	409	817
Contribution	957	1,175	929	1,515
% of Income	19.1	23.5	18.6	30.3

[E] Flat Percentage with Reserve

	Non-C	Non-C	Non-C	Non-C
Base Amount	463	642	441	943
Tax Adjustment	454	607	435	836
Child Care	382	382	382	382
TOTAL AWARD	1,299	1,631	1,258	2,160
Tax Deduction (-)	386	523	369	740
Contribution	913	1,108	889	1,420
% of Income	18.3	22.2	17.8	28.4

[F] Australian

	Non-C	Non-C	Non-C	Non-C
Base Amount	463	642	441	943
Tax Adjustment	479	642	459	878
Child Care	382	382	382	382
TOTAL AWARD	1,324	1,666	1,282	2,202
Tax Deduction (-)	409	554	390	782
Contribution	915	1,112	892	1,420
% of Income	18.3	22.2	17.8	28.4

FAMILY COMPOSITION OF NON-CUSTODIAL PARENT	1 ADULT	2 ADULTS	2 ADULTS 1 CHILD	2 ADULTS 2 CHILDREN
[G] Income Equalization				
	Non-C	Non-C	Non-C	Non-C
Transfer	2,500	2,500	1,944	1,500
Tax Adjustment	2,161	2,161	1,663	1,269
TOTAL AWARD	4,661	4,661	3,607	2,769
Tax Deduction (-)	1,595	1,595	1,389	1,144
Total Transfer	3,066	3,066	2,218	1,625
% of Income	61.3	61.3	44.4	32.5

NOTE: For income equalization guideline, four family compositions were analyzed: non-custodial parent living alone (1 adult), non-custodial parent cohabiting with another adult (2 adults), non-custodial parent cohabiting with another adult and one child (2 adults, 1 child), non-custodial parent cohabiting with another adult and two children (2 adults, 2 children).

NOTE: Because of rounding procedures, amounts shown in the above table may be slightly different from the exact amounts.

SCENARIO 3:

Monthly Gross Income of Custodial Parent	$ 4,167	($ 50,000 per annum)
Monthly Gross Income of Non-Custodial Parent	$ 4,167	($ 50,000 per annum)
Total Monthly Gross Income	$ 8,333	($100,000 per annum)

Number of Children: 3   Age of Children: 13-17 7-12 0-6

ESTIMATED MONTHLY EXPENDITURES ON CHILDREN BY ECONOMIC MODELS

	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
Base Amount	1,272	1,273	1,036	2,195
Child Care	400	400	400	400
TOTAL	1,672	1,673	1,436	2,595

MONTHLY CHILD SUPPORT AWARD

[Abbreviation: Cus.=Custodial Parent, Non-C=Non-Custodial Parent]

ECONOMIC MODEL >>>>>	[1]		[2]		[3]		[4]	
GUIDELINE	Consumption		Adult Goods		Extended Engel		Blackorby/ Donaldson	
[A] Income Shares								
	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	636	636	636	636	518	518	1,097	1,097
Tax Adjustment		562		562		462		974
Child Care	200	200	200	200	200	200	200	200
TOTAL AWARD		1,398		1,398		1,180		2,271
Tax Deduction (-)		492		492		403		837
Contribution	836	906	836	906	718	777	1,297	1,434
% of Income	20.1	21.7	20.1	21.7	17.2	18.7	31.1	34.4
[B] Income Shares with Reserve								
	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	636	636	636	636	518	518	1,097	1,097
Tax Adjustment		562		562		462		974
Child Care	200	200	200	200	200	200	200	200
TOTAL AWARD		1,398		1,398		1,180		2,271
Tax Deduction (-)		492		492		403		837
Contribution	836	906	836	906	718	777	1,297	1,434
% of Income	20.1	21.7	20.1	21.7	17.2	18.7	31.1	34.4
[C] Delaware Melson								
		Non-C		Non-C		Non-C		Non-C
Base Amount		858		971		792		1,229
Tax Adjustment		805		917		740		1,175
Child Care		200		200		200		200
TOTAL AWARD		1,863		2,088		1,732		2,604
Tax Deduction (-)		710		797		647		959
Contribution		1,153		1,291		1,085		1,645
% of Income		27.7		31.0		26.0		39.5

[D] Flat Percentage

	Non-C	Non-C	Non-C	Non-C
Base Amount	597	741	512	1,073
Tax Adjustment	528	654	457	951
Child Care	200	200	200	200
TOTAL AWARD	1,325	1,595	1,169	2,224
Tax Deduction (-)	462	573	398	821
Contribution	863	1,022	771	1,403
% of Income	20.7	24.5	18.5	33.7

[E] Flat Percentage with Reserve

	Non-C	Non-C	Non-C	Non-C
Base Amount	522	648	448	938
Tax Adjustment	465	571	402	831
Child Care	200	200	200	200
TOTAL AWARD	1,187	1,419	1,050	1,969
Tax Deduction (-)	405	500	349	736
Contribution	782	919	701	1,233
% of Income	18.8	22.1	16.8	29.6

[F] Australian

	Non-C	Non-C	Non-C	Non-C
Base Amount	361	448	310	649
Tax Adjustment	323	403	269	573
Child Care	200	200	200	200
TOTAL AWARD	884	1,051	779	1,422
Tax Deduction (-)	281	350	237	502
Contribution	603	701	542	920
% of Income	14.5	16.8	13.0	22.1

FAMILY COMPOSITION OF NON-CUSTODIAL PARENT	1 ADULT	2 ADULTS	2 ADULTS 1 CHILD	2 ADULTS 2 CHILDREN

[G] Income Equalization

	Non-C	Non-C	Non-C	Non-C
Transfer	1,786	2,778	2,083	1,515
Tax Adjustment	1,787	2,745	2,075	1,348
TOTAL AWARD	3,573	5,523	4,158	2,863
Tax Deduction (-)	1,241	1,233	1,241	1,062
Total Transfer	2,332	4,290	2,917	1,801
% of Income	56.0	103.0	70.0	43.2

NOTE: For income equalization guideline, four family compositions were analyzed: non-custodial parent living alone (1 adult), non-custodial parent cohabiting with another adult (2 adults), non-custodial parent cohabiting with another adult and one child (2 adults, 1 child), non-custodial parent cohabiting with another adult and two children (2 adults, 2 children).

NOTE: Because of rounding procedures, amounts shown in the above table may be slightly different from the exact amounts.

SCENARIO 4:

Monthly Gross Income of Custodial Parent	$ 1,667	($ 20,000 per annum)
Monthly Gross Income of Non-Custodial Parent	$ 5,833	($ 70,000 per annum)
Total Monthly Gross Income	$ 7,500	($ 90,000 per annum)

Number of Children: 4   Age of Children: 13-17 7-12 7-12 0-6

ESTIMATED MONTHLY EXPENDITURES ON CHILDREN BY ECONOMIC MODELS

	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
Base Amount	1,350	1,381	1,104	2,255
Child Care	400	400	400	400
TOTAL	1,750	1,781	1,504	2,655

MONTHLY CHILD SUPPORT AWARD

[Abbreviation: Cus.=Custodial Parent, Non-C=Non-Custodial Parent]

ECONOMIC MODEL >>>>>	[1]		[2]		[3]		[4]	
GUIDELINE	Consumption		Adult Goods		Extended Engel		Blackorby/ Donaldson	
[A] Income Shares	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	300	1,050	307	1,074	245	859	501	1,754
Tax Adjustment		984		1,005		813		1,618
Child Care	89	311	89	311	89	311	89	311
TOTAL AWARD		2,345		2,390		1,983		3,683
Tax Deduction (-)		894		912		745		1,449
Contribution	389	1,452	396	1,479	334	1,238	590	2,234
% of Income	23.3	24.9	23.8	25.3	20.1	21.2	35.4	38.3
[B] Income Shares with Reserve	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	239	1,111	245	1,137	196	909	399	1,855
Tax Adjustment		1,036		1,058		858		1,723
Child Care	71	329	71	329	71	329	71	329
TOTAL AWARD		2,476		2,524		2,096		3,907
Tax Deduction (-)		940		960		784		1,527
Contribution	310	1,536	316	1,564	267	1,312	470	2,381
% of Income	18.6	26.3	18.9	26.8	16.0	22.5	28.2	40.8
[C] Delaware Melson		Non-C		Non-C		Non-C		Non-C
Base Amount		1,660		1,769		1,510		2,175
Tax Adjustment		1,667		1,801		1,486		2,273
Child Care		329		329		329		329
TOTAL AWARD		3,656		3,899		3,325		4,777
Tax Deduction (-)		1,490		1,577		1,336		1,848
Contribution		2,166		2,322		1,989		2,929
% of Income		37.1		39.8		34.1		50.2

[D] Flat Percentage

	Non-C	Non-C	Non-C	Non-C
Base Amount	1,048	1,191	851	1,722
Tax Adjustment	981	1,104	806	1,586
Child Care	311	311	311	311
TOTAL AWARD	2,340	2,606	1,968	3,620
Tax Deduction (-)	891	1,001	739	1,419
Contribution	1,449	1,605	1,229	2,201
% of Income	24.8	27.5	21.1	37.7

[E] Flat Percentage with Reserve

	Non-C	Non-C	Non-C	Non-C
Base Amount	954	1,084	774	1,568
Tax Adjustment	899	1,012	731	1,426
Child Care	329	329	329	329
TOTAL AWARD	2,182	2,425	1,834	3,323
Tax Deduction (-)	819	919	677	1,288
Contribution	1,363	1,506	1,158	2,035
% of Income	23.4	25.8	19.8	34.9

[F] Australian

	Non-C	Non-C	Non-C	Non-C
Base Amount	954	1,084	774	1,568
Tax Adjustment	899	1,012	731	1,426
Child Care	329	329	329	329
TOTAL AWARD	2,182	2,425	1,834	3,323
Tax Deduction (-)	819	919	677	1,288
Contribution	1,363	1,506	1,158	2,035
% of Income	23.4	25.8	19.8	34.9

FAMILY COMPOSITION OF NON-CUSTODIAL PARENT	1 ADULT	2 ADULTS	2 ADULTS 1 CHILD	2 ADULTS 2 CHILDREN

[G] Income Equalization

	Non-C	Non-C	Non-C	Non-C
Transfer	3,958	3,833	3,333	2,917
Tax Adjustment	3,924	3,804	3,321	2,918
TOTAL AWARD	7,882	7,637	6,654	5,835
Tax Deduction (-)	1,971	1,973	1,979	1,984
Total Transfer	5,912	5,665	4,676	3,851
% of Income	101.3	97.1	80.2	66.0

NOTE: For income equalization guideline, four family compositions were analyzed: non-custodial parent living alone (1 adult), non-custodial parent cohabiting with another adult (2 adults), non-custodial parent cohabiting with another adult and one child (2 adults, 1 child), non-custodial parent cohabiting with another adult and two children (2 adults, 2 children).

NOTE: Because of rounding procedures, amounts shown in the above table may be slightly different from the exact amounts.

SCENARIO 5:

Monthly Gross Income of Custodial Parent	$ 3,333	($ 40,000 per annum)
Monthly Gross Income of Non-Custodial Parent	$ 2,500	($ 30,000 per annum)
Total Monthly Gross Income	$ 5,833	($ 70,000 per annum)

Number of Children: 2   Age of Children: 13-17 7-12

ESTIMATED MONTHLY EXPENDITURES ON CHILDREN BY ECONOMIC MODELS

	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
Base Amount	780	882	625	1,257
Child Care	0	0	0	0
TOTAL	780	882	625	1,257

MONTHLY CHILD SUPPORT AWARD

[Abbreviation: Cus.=Custodial Parent, Non-C=Non-Custodial Parent]

ECONOMIC MODEL >>>>>	[1]		[2]		[3]		[4]	
GUIDELINE	Consumption		Adult Goods		Extended Engel		Blackorby/ Donaldson	
[A] Income Shares								
	Cus.	**Non-C**	**Cus.**	**Non-C**	**Cus.**	**Non-C**	**Cus.**	**Non-C**
Base Amount	446	334	504	378	357	268	719	539
Tax Adjustment		286		319		229		431
Child Care	0	0	0	0	0	0	0	0
TOTAL AWARD		620		697		497		970
Tax Deduction (-)		211		233		176		310
Contribution	446	409	504	464	357	321	719	660
% of Income	13.4	16.4	15.1	18.6	10.7	12.8	21.6	26.4
[B] Income Shares with Reserve								
	Cus.	**Non-C**	**Cus.**	**Non-C**	**Cus.**	**Non-C**	**Cus.**	**Non-C**
Base Amount	458	322	518	364	367	258	738	519
Tax Adjustment		276		309		221		418
Child Care	0	0	0	0	0	0	0	0
TOTAL AWARD		598		673		479		937
Tax Deduction (-)		205		226		171		301
Contribution	458	393	518	447	367	308	738	636
% of Income	13.7	15.7	15.5	17.9	11.0	12.3	22.1	25.4
[C] Delaware Melson								
		Non-C		**Non-C**		**Non-C**		**Non-C**
Base Amount		398		469		390		587
Tax Adjustment		347		402		341		494
Child Care		0		0		0		0
TOTAL AWARD		745		871		731		1,081
Tax Deduction (-)		252		290		248		353
Contribution		493		580		482		728
% of Income		19.7		23.2		19.3		29.1

[D] Flat Percentage

	Non-C	Non-C	Non-C	Non-C
Base Amount	259	359	246	526
Tax Adjustment	221	305	211	422
Child Care	0	0	0	0
TOTAL AWARD	480	664	457	948
Tax Deduction (-)	171	223	165	304
Contribution	309	440	292	644
% of Income	12.3	17.6	11.7	25.8

[E] Flat Percentage with Reserve

	Non-C	Non-C	Non-C	Non-C
Base Amount	205	284	195	416
Tax Adjustment	175	242	166	346
Child Care	0	0	0	0
TOTAL AWARD	380	526	361	762
Tax Deduction (-)	140	184	134	251
Contribution	239	341	227	511
% of Income	9.6	13.7	9.1	20.4

[F] Australian

	Non-C	Non-C	Non-C	Non-C
Base Amount	148	205	140	300
Tax Adjustment	126	175	120	257
Child Care	0	0	0	0
TOTAL AWARD	274	380	260	557
Tax Deduction (-)	105	140	101	193
Contribution	168	239	159	364
% of Income	6.7	9.6	6.4	14.6

FAMILY COMPOSITION OF NON-CUSTODIAL PARENT	1 ADULT	2 ADULTS	2 ADULTS 1 CHILD	2 ADULTS 2 CHILDREN

[G] Income Equalization

	Non-C	Non-C	Non-C	Non-C
Transfer	556	1,250	741	333
Tax Adjustment	443	1,000	572	285
TOTAL AWARD	999	2,250	1,313	618
Tax Deduction (-)	318	557	407	211
Total Transfer	680	1,693	906	407
% of Income	27.2	67.7	36.2	16.3

NOTE: For income equalization guideline, four family compositions were analyzed: non-custodial parent living alone (1 adult), non-custodial parent cohabiting with another adult (2 adults), non-custodial parent cohabiting with another adult and one child (2 adults, 1 child), non-custodial parent cohabiting with another adult and two children (2 adults, 2 children).

NOTE: Because of rounding procedures, amounts shown in the above table may be slightly different from the exact amounts.

SCENARIO 6:

Monthly Gross Income of Custodial Parent	$ 833	($ 10,000 per annum)
Monthly Gross Income of Non-Custodial Parent	$ 833	($ 10,000 per annum)
Total Monthly Gross Income	$ 1,667	($ 20,000 per annum)

Number of Children: 1   Age of Children: 0-6

ESTIMATED MONTHLY EXPENDITURES ON CHILDREN BY ECONOMIC MODELS

	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
Base Amount	33	261	88	208
Child Care	400	400	400	400
TOTAL	433	661	488	608

MONTHLY CHILD SUPPORT AWARD

[Abbreviation: Cus.=Custodial Parent, Non-C=Non-Custodial Parent]

ECONOMIC MODEL >>>>>	[1]		[2]		[3]		[4]	
GUIDELINE	Consumption		Adult Goods		Extended Engel		Blackorby/ Donaldson	
[A] Income Shares								
	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	17	17	131	131	44	44	104	104
Tax Adjustment		0		2		0		1
Child Care	200	200	200	200	200	200	200	200
TOTAL AWARD		217		333		244		305
Tax Deduction (-)		4		47		11		38
Contribution	217	213	331	286	244	233	304	267
% of Income	26.0	25.5	39.7	34.3	29.3	28.0	36.5	32.0
[B] Income Shares with Reserve								
	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C	Cus.	Non-C
Base Amount	17	17	131	131	44	44	104	104
Tax Adjustment		0		2		0		1
Child Care	200	200	200	200	200	200	200	200
TOTAL AWARD		217		333		244		305
Tax Deduction (-)		4		47		11		38
Contribution	217	213	331	286	244	233	304	267
% of Income	26.0	25.5	39.7	34.3	29.3	28.0	36.5	32.0
[C] Delaware Melson								
		Non-C		Non-C		Non-C		Non-C
Base Amount		143		148		144		158
Tax Adjustment		7		9		7		13
Child Care		200		200		200		200
TOTAL AWARD		350		357		351		371
Tax Deduction (-)		52		54		52		57
Contribution		298		303		299		314
% of Income		35.8		36.3		35.8		37.7

[D] Flat Percentage

	Non-C	Non-C	Non-C	Non-C
Base Amount	58	79	60	127
Tax Adjustment	0	0	0	1
Child Care	200	200	200	200
TOTAL AWARD	258	279	260	328
Tax Deduction (-)	17	27	19	47
Contribution	241	252	241	281
% of Income	28.9	30.3	28.9	33.7

[E] Flat Percentage with Reserve

	Non-C	Non-C	Non-C	Non-C
Base Amount	21	29	22	47
Tax Adjustment	0	0	0	0
Child Care	200	200	200	200
TOTAL AWARD	221	229	222	247
Tax Deduction (-)	5	8	6	13
Contribution	216	221	216	234
% of Income	26.0	26.6	26.0	28.1

[F] Australian

	Non-C	Non-C	Non-C	Non-C
Base Amount	21	29	22	47
Tax Adjustment	0	0	0	0
Child Care	200	200	200	200
TOTAL AWARD	221	229	222	247
Tax Deduction (-)	5	8	6	13
Contribution	216	221	216	234
% of Income	26.0	26.6	26.0	28.1

FAMILY COMPOSITION OF NON-CUSTODIAL PARENT	1 ADULT	2 ADULTS	2 ADULTS 1 CHILD	2 ADULTS 2 CHILDREN

[G] Income Equalization

	Non-C	Non-C	Non-C	Non-C
Transfer	167	238	104	0
Tax Adjustment	11	28	1	1
TOTAL AWARD	178	266	105	1
Tax Deduction (-)	55	71	38	0
Total Transfer	123	195	67	1
% of Income	14.7	23.4	8.0	0.1

NOTE: For income equalization guideline, four family compositions were analyzed: non-custodial parent living alone (1 adult), non-custodial parent cohabiting with another adult (2 adults), non-custodial parent cohabiting with another adult and one child (2 adults, 1 child), non-custodial parent cohabiting with another adult and two children (2 adults, 2 children).

NOTE: Because of rounding procedures, amounts shown in the above table may be slightly different from the exact amounts.

APPENDIX 2

COMPARATIVE ANNUAL EXPENDITURES ON CHILDREN

COMPARATIVE ANNUAL EXPENDITURES ON CHILDREN
($ AND % OF GROSS FAMILY INCOME)
SELECTED FAMILY INCOMES BY ECONOMIC MODEL

{I} FOR COUPLES WITH ONE CHILD

ECONOMIC MODEL >>> INCOME	[1] Consumption	[2] Adult Goods	[3] Extended Engel	[4] Blackorby/ Donaldson
Age of Child: 0-6				
$ 20,000	401(2.0)	3,137(15.7)	1,057(5.3)	2,499(12.5)
$ 30,000	1,036(3.5)	3,890(13.0)	1,585(5.3)	3,749(12.5)
$ 40,000	1,671(4.2)	4,531(11.3)	1,755(4.4)	4,198(10.5)
$ 50,000	2,306(4.6)	5,100(10.2)	2,194(4.4)	5,248(10.5)
$ 60,000	2,941(4.9)	5,618(9.4)	2,633(4.4)	6,298(10.5)
$ 70,000	3,576(5.1)	6,097(8.7)	3,072(4.4)	7,347(10.5)
$ 80,000	4,211(5.3)	6,544(8.2)	3,670(4.6)	9,078(11.3)
$ 90,000	4,846(5.4)	6,966(7.7)	4,129(4.6)	10,212(11.3)
$100,000	5,481(5.5)	7,366(7.4)	4,588(4.6)	11,347(11.3)
$110,000	6,116(5.6)	7,748(7.0)	5,046(4.6)	12,482(11.3)
$120,000	6,751(5.6)	8,114(6.8)	5,505(4.6)	13,617(11.3)
Age of Child: 7-12				
$ 20,000	766(3.8)	3,475(17.4)	1,693(8.5)	3,145(15.7)
$ 30,000	1,483(4.9)	4,309(14.4)	2,539(8.5)	4,717(15.7)
$ 40,000	2,200(5.5)	5,020(12.6)	2,811(7.0)	5,810(14.5)
$ 50,000	2,917(5.8)	5,650(11.3)	3,514(7.0)	7,262(14.5)
$ 60,000	3,634(6.1)	6,224(10.4)	4,216(7.0)	8,715(14.5)
$ 70,000	4,351(6.2)	6,754(9.6)	4,919(7.0)	10,167(14.5)
$ 80,000	5,068(6.3)	7,250(9.1)	5,878(7.3)	12,846(16.1)
$ 90,000	5,785(6.4)	7,717(8.6)	6,612(7.3)	14,452(16.1)
$100,000	6,502(6.5)	8,161(8.2)	7,347(7.3)	16,058(16.1)
$110,000	7,219(6.6)	8,584(7.8)	8,082(7.3)	17,664(16.1)
$120,000	7,936(6.6)	8,989(7.5)	8,817(7.3)	19,270(16.1)
Age of Child: 13-17				
$ 20,000	1,854(9.3)	3,834(19.2)	2,286(11.4)	3,739(18.7)
$ 30,000	2,815(9.4)	4,754(15.8)	3,430(11.4)	5,608(18.7)
$ 40,000	3,776(9.4)	5,538(13.8)	3,796(9.5)	7,227(18.1)
$ 50,000	4,737(9.5)	6,233(12.5)	4,745(9.5)	9,034(18.1)
$ 60,000	5,698(9.5)	6,866(11.4)	5,695(9.5)	10,841(18.1)
$ 70,000	6,659(9.5)	7,451(10.6)	6,644(9.5)	12,648(18.1)
$ 80,000	7,620(9.5)	7,998(10.0)	7,938(9.9)	16,103(20.1)
$ 90,000	8,581(9.5)	8,513(9.5)	8,930(9.9)	18,116(20.1)
$100,000	9,542(9.5)	9,003(9.0)	9,923(9.9)	20,129(20.1)
$110,000	10,503(9.5)	9,469(8.6)	10,915(9.9)	22,141(20.1)
$120,000	11,464(9.6)	9,917(8.3)	11,907(9.9)	24,154(20.1)

{II} FOR COUPLES WITH TWO CHILDREN

ECONOMIC MODEL >>>	[1]	[2]	[3]	[4]
INCOME	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
Age of Children: 0-6 0-6				
$ 20,000	1,083(5.4)	4,854(24.3)	1,707(8.5)	4,147(20.7)
$ 40,000	2,361(5.9)	7,011(17.5)	2,835(7.1)	6,720(16.8)
$ 60,000	3,639(6.1)	8,692(14.5)	4,253(7.1)	10,081(16.8)
$ 80,000	4,917(6.1)	10,125(12.7)	5,928(7.4)	14,333(17.9)
$100,000	6,195(6.2)	11,397(11.4)	7,410(7.4)	17,917(17.9)
$120,000	7,473(6.2)	12,554(10.5)	8,892(7.4)	21,500(17.9)
Age of Children: 7-12 0-6				
$ 20,000	1,483(7.4)	5,046(25.2)	2,009(10.0)	4,409(22.0)
$ 40,000	2,941(7.4)	7,288(18.2)	3,335(8.3)	7,395(18.5)
$ 60,000	4,399(7.3)	9,037(15.1)	5,003(8.3)	11,093(18.5)
$ 80,000	5,857(7.3)	10,526(13.2)	6,974(8.7)	15,916(19.9)
$100,000	7,315(7.3)	11,849(11.8)	8,718(8.7)	19,895(19.9)
$120,000	8,773(7.3)	13,052(10.9)	10,462(8.7)	23,874(19.9)
Age of Children: 7-12 7-12				
$ 20,000	1,881(9.4)	5,244(26.2)	2,300(11.5)	4,661(23.3)
$ 40,000	3,517(8.8)	7,574(18.9)	3,819(9.5)	8,028(20.1)
$ 60,000	5,153(8.6)	9,391(15.7)	5,728(9.5)	12,043(20.1)
$ 80,000	6,789(8.5)	10,939(13.7)	7,985(10.0)	17,387(21.7)
$100,000	8,425(8.4)	12,313(12.3)	9,982(10.0)	21,734(21.7)
$120,000	10,061(8.4)	13,563(11.3)	11,978(10.0)	26,081(21.7)
Age of Children: 13-17 0-6				
$ 20,000	2,679(13.4)	5,244(26.2)	2,300(11.5)	4,661(23.3)
$ 40,000	4,673(11.7)	7,574(18.9)	3,819(9.5)	8,028(20.1)
$ 60,000	6,667(11.1)	9,391(15.7)	5,728(9.5)	12,043(20.1)
$ 80,000	8,661(10.8)	10,939(13.7)	7,985(10.0)	17,387(21.7)
$100,000	10,655(10.7)	12,313(12.3)	9,982(10.0)	21,734(21.7)
$120,000	12,649(10.5)	13,563(11.3)	11,978(10.0)	26,081(21.7)
Age of Children: 13-17 7-12				
$ 20,000	3,478(17.4)	5,447(27.2)	2,581(12.9)	4,903(24.5)
$ 40,000	5,830(14.6)	7,867(19.7)	4,286(10.7)	8,622(21.6)
$ 60,000	8,182(13.6)	9,755(16.3)	6,429(10.7)	12,934(21.6)
$ 80,000	10,534(13.2)	11,362(14.2)	8,962(11.2)	18,755(23.4)
$100,000	12,886(12.9)	12,790(12.8)	11,202(11.2)	23,444(23.4)
$120,000	15,238(12.7)	14,088(11.7)	13,443(11.2)	28,133(23.4)
Age of Children: 13-17 13-17				
$ 20,000	4,275(21.4)	5,656(28.3)	2,853(14.3)	5,134(25.7)
$ 40,000	6,983(17.5)	8,168(20.4)	4,737(11.8)	9,179(22.9)
$ 60,000	9,691(16.2)	10,128(16.9)	7,106(11.8)	13,769(22.9)
$ 80,000	12,399(15.5)	11,798(14.7)	9,905(12.4)	20,027(25.0)
$100,000	15,107(15.1)	13,280(13.3)	12,382(12.4)	25,033(25.0)
$120,000	17,815(14.8)	14,628(12.2)	14,858(12.4)	30,040(25.0)

{III} FOR COUPLES WITH THREE CHILDREN

ECONOMIC MODEL >>> INCOME	[1] Consumption	[2] Adult Goods	[3] Extended Engel	[4] Blackorby/ Donaldson
Age of Children: 0-6 0-6 0-6				
$ 40,000	3,596(9.0)	8,777(21.9)	3,841(9.6)	8,768(21.9)
$ 80,000	6,916(8.6)	12,676(15.8)	8,032(10.0)	18,593(23.2)
$120,000	10,236(8.5)	15,717(13.1)	12,049(10.0)	27,889(23.2)
Age of Children: 7-12 0-6 0-6				
$ 40,000	4,176(10.4)	8,978(22.4)	4,154(10.4)	9,137(22.8)
$ 80,000	7,856(9.8)	12,967(16.2)	8,686(10.9)	19,458(24.3)
$120,000	11,536(9.6)	16,078(13.4)	13,029(10.9)	29,187(24.3)
Age of Children: 7-12 7-12 0-6				
$ 40,000	4,752(11.9)	9,184(23.0)	4,459(11.1)	9,491(23.7)
$ 80,000	8,788(11.0)	13,264(16.6)	9,325(11.7)	20,283(25.4)
$120,000	12,824(10.7)	16,446(13.7)	13,987(11.7)	30,424(25.4)
Age of Children: 7-12 7-12 7-12				
$ 40,000	4,816(12.0)	9,393(23.5)	4,758(11.9)	9,830(24.6)
$ 80,000	8,892(11.1)	13,566(17.0)	9,949(12.4)	21,068(26.3)
$120,000	12,968(10.8)	16,820(14.0)	14,924(12.4)	31,602(26.3)
Age of Children: 13-17 0-6 0-6				
$ 40,000	5,908(14.8)	9,184(23.0)	4,459(11.1)	9,491(23.7)
$ 80,000	10,660(13.3)	13,264(16.6)	9,325(11.7)	20,283(25.4)
$120,000	15,412(12.8)	16,446(13.7)	13,987(11.7)	30,424(25.4)
Age of Children: 13-17 7-12 0-6				
$ 40,000	7,065(17.7)	9,393(23.5)	4,758(11.9)	9,830(24.6)
$ 80,000	12,533(15.7)	13,566(17.0)	9,949(12.4)	21,068(26.3)
$120,000	18,001(15.0)	16,820(14.0)	14,924(12.4)	31,602(26.3)
Age of Children: 13-17 7-12 7-12				
$ 40,000	7,129(17.8)	9,606(24.0)	5,050(12.6)	10,154(25.4)
$ 80,000	12,637(15.8)	13,873(17.3)	10,559(13.2)	21,816(27.3)
$120,000	18,145(15.1)	17,201(14.3)	15,839(13.2)	32,724(27.3)
Age of Children: 13-17 13-17 0-6				
$ 40,000	8,217(20.5)	9,606(24.0)	5,050(12.6)	10,154(25.4)
$ 80,000	14,397(18.0)	13,873(17.3)	10,559(13.2)	21,816(27.3)
$120,000	20,577(17.1)	17,201(14.3)	15,839(13.2)	32,724(27.3)
Age of Children: 13-17 13-17 7-12				
$ 40,000	8,281(20.7)	9,822(24.6)	5,335(13.3)	10,466(26.2)
$ 80,000	14,501(18.1)	14,186(17.7)	11,156(13.9)	22,528(28.2)
$120,000	20,721(17.3)	17,589(14.7)	16,734(13.9)	33,792(28.2)
Age of Children: 13-17 13-17 13-17				
$ 40,000	8,857(22.1)	10,042(25.1)	5,614(14.0)	10,764(26.9)
$ 80,000	15,433(19.3)	14,504(18.1)	11,738(14.7)	23,206(29.0)
$120,000	22,009(18.3)	17,983(15.0)	17,608(14.7)	34,810(29.0)

APPENDIX 3

TECHNICAL DETAILS OF SIMULATION

Range of Values Simulated

- Income: \$10,000 to \$70,000 (\$5,000 intervals) for each of the parents [13 income combinations for each parent, a total of 13X13 or 169 combinations]
- Number of Children: 1 to 4
- Age Group of Children: 0-6, 7-12, 13-17

  3 combinations for 1 child
  6 combinations for 2 children
  10 combinations for 3 children
  15 combinations for 4 children

  [a total of 34 children combinations]
- Total number of combinations: 5,746 (169 times 34)

Formulae Used in the Economic Models for Estimating Expenditures on Children

- Abbreviations used in the formulae below:

  INC = total gross income of both parents
  EXPCH = expenditures on children
  EXPTOT = total family expenditures
  EXPAD = expenditures on adults
  ADGDS = amount for adult goods
  NCH = number of children
  MAGE = mean age of children
  ln = natural logarithmic value
  exp = exponential

- The parameters used in the formulae below were developed from the 1986 FAMEX survey data.

[1] Consumption Model:

The expenditures on children are estimated from the following formulae:

For 1 child:

Aged 0-6:

- 683 + 0.0635 * total gross income of both parents

Aged 7-12:

- 525 + 0.0717 * total gross income of both parents

Aged 13-17:

- 53 + 0.0961 * total gross income of both parents

For 2 children:

Aged 0-6, 0-6:

- 153 + 0.0639 * total gross income of both parents

Aged 0-6, 7-12:

20 + 0.0729 * total gross income of both parents

Aged 0-6, 13-17:

539 + 0.0997 * total gross income of both parents

Aged 7-12, 7-12:

193 + 0.0818 * total gross income of both parents

Aged 7-12, 13-17:

886 + 0.1176 * total gross income of both parents

Aged 13-17, 13-17:

1232 + 0.1354 * total gross income of both parents

For additional expenditures for third or fourth children:

Aged 0-6:

370 + 0.0191 * total gross income of both parents

Aged 7-12:

389 + 0.0201 * total gross income of both parents

Aged 13-17:

562 + 0.0290 * total gross income of both parents

[2] Adult Goods Model:

Total family expenditures
= exponential of
(0.530316 * natural logarithm of total gross income of both parents
+ 0.00673 * mean age of children + 4.60892)

Expenditures on adult goods
= 2766.99 * natural logarithm of
{ total family expenditures / (number of children + 2) }
+ 1843.77 * natural logarithm of (number of children + 2)
+ 4.96309 * mean age of children - 24114.2

Expenditures on adults
= 2 * exponential of
{ (expenditures on adult goods - 1843.77
* natural logarithm of 2 + 24075.49) / 2766.99 }

Expenditures on children
= total family expenditures - expenditures on adults

The abbreviated formulae of the model are:

```
EXPTOT = exp ( 0.530316 * ln (INC) + 0.00673 * MAGE + 4.60892 )
ADGDS  = 2766.99 * ln (EXPTOT/(NCH+2)) + 1843.77 * ln(NCH+2)
         + 4.96309 * MAGE - 24114.2
EXPAD  = 2 * exp (( ADGDS - 1843.77 * ln(2) + 24075.49) / 2766.99)
EXPCH  = EXPTOT - EXPAD
```

[3] Extended Engel Model:

The multiplier for estimating net income is:
If total gross income of both parents is below $30,000,
the multiplier is 0.53
If total gross income of both parents is between $30,000 and $60,000,
the multiplier is 0.44
If total gross income of both parents is above $60,000,
the multiplier is 0.46

Expenditures on children
= multiplier * (total gross income of both parents)
- multiplier * total gross income of both parents
/ { exponential of [(0.047321 * number of children
+ 0.0077045 * mean age of children + 7.1823028)
/ 0.67034] / 45000 }

The abbreviated formula of the model is:
EXPCH = multiplier * INC - multiplier * INC / (exp((7.1823028
+ 0.047321 * NCH + 0.0077045 * MAGE) /0.67034) /45000)

[4] Blackorby/Donaldson Model:

If total gross income of both parents is below $30,000:
Expenditures on children
= 0.53 * { total gross income of both parents
- total gross income of both parents / exponential of
(0.22743 * number of children
+ 0.01384 * mean age of children) }

If total gross income of both parents is between $30,000 and $60,000:

Expenditures on children
= 0.44 * (total gross income of both parents
- total gross income of both parents / exponential of
(0.2085 * number of children
+ 0.02135 * mean age of children))

If total gross income of both parents is above $60,000:

Expenditures on children
= 0.46 * (total gross income of both parents
- total gross income of both parents / exponential of
(0.21021 * number of children
+ 0.024354 * mean age of children))

The abbreviated formulae of the model are:

EXPCH = 0.53 * (INC - INC / exp(0.22743 * NCH + 0.01384 * MAGE))
if INC < 30000
EXPCH = 0.44 * (INC - INC / exp(0.2085 * NCH + 0.02135 * MAGE))
if 30000 <= INC <= 60000
EXPCH = 0.46 * (INC - INC / exp(0.21021 * NCH + 0.024354 * MAGE))
if INC > 60000

Adaptation of the Economic Models to 1991 Dollars

Since the economic models were developed from the 1986 FAMEX survey, the formulae should not be applied directly to 1991 incomes. Consequently, the following procedure was used to modify the 1991 incomes to 1986 dollars before applying the economic models:

(a) Modify the 1991 incomes to 1986 dollars. The consumer price index (CPI) of June 1991 was 127.2 if CPI of June 1986 was 100.
(b) Use the economic models to estimate the expenditures on children based on the modified incomes.
(c) Convert the expenditures on children awards into 1991 dollars.

Formulae Used in the Guidelines for Calculating Child Support Awards

Detailed descriptions of the guidelines can be found in Chapter 2.

The following table shows the estimated expenditures on children as a percentage of gross family income. The values are derived from calculating the mean of all combinations in the simulation. For example, the percentages for one child is based on 507 simulations (169 income combinations times 3 child combinations) while the percentages for four children is based on 2,535 simulations (169 income combinations times 15 child combinations). These percentages are applied in Guidelines C (Delaware Melson), D (Flat percentage), E (Flat percentage with reserve), and F (Australian).

	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
1 child	6.94	9.51	7.21	15.23
2 children	10.35	14.35	9.85	21.05
3 children	14.33	17.79	12.30	25.75
4 children	17.96	20.41	14.58	29.53

- Abbreviations used in the formulae below:

EXPCH = estimated expenditures on children
INCCUS = gross income of custodial parent
INCNON = gross income of non-custodial parent
NCH = number of children
BASE = base amount of child support award
PERC = mean percentage of expenditures on children to total gross income of two parents (percentage from the above table)

[A] Income Shares:

1. Calculate percentage of gross income of non-custodial parent to total gross income of two parents.

$$\frac{\mathrm{INCNON}}{\mathrm{INCCUS} + \mathrm{INCNON}}$$

2. Multiply percentage to estimated expenditures on children from the economic models.

$$\mathrm{BASE} = \frac{\mathrm{INCNON}}{\mathrm{INCCUS} + \mathrm{INCNON}} \times \mathrm{EXPCH}$$

[B] Income Shares with Reserve:

1. Determine self support reserve for adults ($6,280 for 1991, based on income tax basic exemption).

2. Calculate gross income of non-custodial parent after subtracting self support reserve.

$$\mathrm{INCNON} - 6280$$

3. Calculate gross income of custodial parent after subtracting self support reserve.

$$\mathrm{INCCUS} - 6280$$

4. Calculate percentage of gross income after reserve of non-custodial parent to total gross income after reserve of two parents.

$$\frac{\mathrm{INCNON} - 6280}{(\mathrm{INCNON} - 6280) + (\mathrm{INCCUS} - 6280)}$$

5. Multiply this percentage to estimated expenditures on children from the economic models.

$$\text{BASE} = \frac{\text{INCNON} - 6280}{(\text{INCNON} - 6280) + (\text{INCCUS} - 6280)} \times \text{EXPCH}$$

[C] Delaware Melson:

1. Determine self support reserve for one adult ($6,280 for 1991) and basic needs for one child ($3,140 for 1991, assuming basic needs of a child to be half of an adult).

2. Calculate percentage of gross income after reserve of non-custodial parent to total gross income after reserve of two parents.

$$\frac{\text{INCNON} - 6280}{(\text{INCNON} - 6280) + (\text{INCCUS} - 6280)}$$

3. Multiply this percentage to total child basic needs ($3,140 times number of children). This constitutes the first component [COMP1] of the award.

$$\text{COMP1} = \frac{\text{INCNON} - 6280}{(\text{INCCUS} - 6280) + (\text{INCNON} - 6280)} \times (3140 \times \text{NCH})$$

4. Calculate gross income of non-custodial parent after reserve and after the first award component.

$\text{INCNON} - 6280 - \text{COMP1}$

5. Multiply this amount to mean percentage of expenditures on children from the table. This is the cost of living adjustment and constitutes the second component [COMP2] of the award.

$\text{COMP2} = (\text{INCNON} - 6280 - \text{COMP1}) \times \text{PERC}$

6. Total child support award is the total of the two components.

   BASE = COMP1 + COMP2

[D] Flat Percentage:

1. Use the mean percentage of expenditures on children from the table.

2. Multiply this percentage to the gross income of the non-custodial parent.

   BASE = INCNON * PERC

[E] Flat Percentage with Reserve:

1. Determine self support reserve for adults ($6,280 for 1991).

2. Calculate gross income of non-custodial parent after subtracting self support reserve.

   INCNON - 6280

3. Multiply this amount to the mean percentage of expenditures on children from the table.

   BASE = (INCNON - 6280) * PERC

[F] Australian:

1. If the gross income of the custodial parent is below the average yearly earnings ($27,112 in 1991), child support awards will be based on flat percentage with reserve guideline (Guideline E). Otherwise, the following procedures will be used.

2. Subtract self support reserve ($6,280 for 1991) from the gross income of the non-custodial parent. This is the adjusted income of the non-custodial parent.

   INCNON - 6280

3. Calculate the disregarded income of the custodial parent by adding the child basic needs ($3,140 for each child) to the average yearly earnings.

   27112 + 3140 X NCH

4. Subtract the disregarded income from the gross income of the custodial parent. This is the adjusted income of the custodial parent.

   INCCUS - (27112 + 3140 X NCH)

5. Subtract the adjusted income of the custodial parent from the adjusted income of the non-custodial income.

   [INCNON - 6280] - [INCCUS - (27112 + 3140 X NCH)]

6. Multiply this amount to mean percentage of expenditures on children from the table.

   BASE = {[INCNON-6280] - [INCCUS - (27112 + 3140 X NCH)]} X PERC

[G] Income Equalization:

1. Determine the cost of living for adults and children. In the present simulation, the figures used are based on information from the City of Ottawa. They are round-off income levels for eligibility to maximum welfare benefits.

2. Determine cost of living of custodial parent (COLCUS). The amount is $6,280 for one adult and $3,140 for each additional child.

   COLCUS = 6280 + 3140 X NCH

3. Determine cost of living of non-custodial parent (COLNON). Four family scenarios are tested in the present simulation:

Not re-married	$6,280
Re-married, no children	$6,280 X 2
Re-married, one child	$6,280 X 2 + $3,140
Re-married, two children	$6,280 X 2 + $3,140 X 2

4. The base amount of the child support award is determined by the following formula

$$\text{BASE} = \frac{(\text{COLCUS} \times \text{INCNON}) - (\text{COLNON} \times \text{INCCUS})}{\text{COLCUS} + \text{COLNON}}$$

5. The gross incomes of the two parents should be adjusted to the gross household incomes if either of them re-marry. However, in the present simulation, it is assumed that (a) the custodial parent is not re-married, and (b) the gross income of the new spouse of the non-custodial parent is equal to that of the original spouse.

APPENDIX 4

COMPARATIVE MONTHLY CHILD SUPPORT AWARDS

COMPARATIVE MONTHLY CHILD SUPPORT AWARDS
BEFORE INCOME TAX IMPLICATIONS AND CHILD CARE COSTS
($ AND % OF GROSS INCOME OF NON-CUSTODIAL PARENT)
SELECTED INCOMES BY ECONOMIC MODEL AND GUIDELINE

{I} FOR ONE CHILD AGED 7-12

ECONOMIC MODEL >>> GUIDELINE	[1] Consumption	[2] Adult Goods	[3] Extended Engel	[4] Blackorby/ Donaldson
Custodial Parent: $20,000 Non-Custodial Parent: $20,000				
A] Income share	91(5.5)	209(12.5)	117(7.0)	242(14.5)
B] Inc with R	91(5.5)	209(12.5)	117(7.0)	242(14.5)
C] Delaware Mel	201(12.1)	227(13.6)	203(12.2)	285(17.1)
D] Flat Percent	115(6.9)	158(9.5)	120(7.2)	253(15.2)
E] Perc with R	79(4.7)	108(6.5)	82(4.9)	174(10.4)
F] Australian	79(4.7)	108(6.5)	82(4.9)	174(10.4)
G] *Inc Equal	333(20.0)	476(28.6)	208(12.5)	0(0.0)
Custodial Parent: $20,000 Non-Custodial Parent: $50,000				
A] Income share	258(6.2)	402(9.6)	292(7.0)	605(14.5)
B] Inc with R	275(6.6)	428(10.3)	312(7.5)	644(15.5)
C] Delaware Mel	438(10.5)	526(12.6)	447(10.7)	723(17.4)
D] Flat Percent	288(6.9)	396(9.5)	300(7.2)	634(15.2)
E] Perc with R	252(6.0)	346(8.3)	262(6.3)	554(13.3)
F] Australian	252(6.0)	346(8.3)	262(6.3)	554(13.3)
G] *Inc Equal	1,833(44.0)	1,547(37.1)	1,145(27.5)	833(20.0)
Custodial Parent: $50,000 Non-Custodial Parent: $20,000				
A] Income share	103(6.2)	160(9.6)	117(7.0)	242(14.5)
B] Inc with R	86(5.2)	134(8.0)	97(5.8)	202(12.1)
C] Delaware Mel	137(8.2)	165(9.9)	140(8.4)	227(13.6)
D] Flat Percent	115(6.9)	158(9.5)	120(7.2)	253(15.2)
E] Perc with R	79(4.7)	108(6.5)	82(4.9)	174(10.4)
F] Australian	0(0.0)	0(0.0)	0(0.0)	0(0.0)
G] *Inc Equal	0(0.0)	119(7.1)	0(0.0)	0(0.0)
Custodial Parent: $40,000 Non-Custodial Parent: $40,000				
A] Income share	[illegible]	[illegible]	[illegible](7.3)	535(16.1)
B] Inc with R	[illegible]	[illegible]	[illegible](7.3)	535(16.1)
C] Delaware Mel	[illegible]	[illegible]	[illegible](9.7)	538(16.1)
D] Flat Percent	231(6.9)	317(9.5)	240(7.2)	507(15.2)
E] Perc with R	194(5.8)	267(8.0)	202(6.1)	428(12.8)
F] Australian	138(4.1)	190(5.7)	144(4.3)	304(9.1)
G] *Inc Equal	666(20.0)	952(28.6)	416(12.5)	0(0.0)
Custodial Parent: $30,000 Non-Custodial Parent: $70,000				
A] Income share	379(6.5)	476(8.2)	428(7.3)	936(16.0)
B] Inc with R	394(6.8)	495(8.5)	446(7.6)	975(16.7)
C] Delaware Mel	545(9.3)	677(11.6)	559(9.6)	970(16.6)
D] Flat Percent	404(6.9)	555(9.5)	420(7.2)	888(15.2)
E] Perc with R	368(6.3)	505(8.7)	383(6.6)	808(13.9)
F] Australian	369(6.3)	507(8.7)	384(6.6)	811(13.9)
G] *Inc Equal	2,500(42.9)	2,142(36.7)	1,562(26.8)	1,111(19.0)
Custodial Parent: $70,000 Non-Custodial Parent: $30,000				
A] Income share	162(6.5)	204(8.2)	183(7.3)	401(16.0)
B] Inc with R	146(5.8)	184(7.4)	166(6.6)	363(14.5)
C] Delaware Mel	203(8.1)	252(10.1)	208(8.3)	361(14.4)
D] Flat Percent	173(6.9)	237(9.5)	180(7.2)	380(15.2)
E] Perc with R	137(5.5)	189(7.5)	142(5.7)	301(12.0)
F] Australian	0(0.0)	0(0.0)	0(0.0)	0(0.0)
G] *Inc Equal	0(0.0)	[illegible]	0(0.0)	0(0.0)

[illegible] 4 columns are for:
[illegible] 4) 2 adults, 2 children

{II} FOR TWO CHILDREN AGED 7-12 0-6

ECONOMIC MODEL >>> GUIDELINE	[1] Consumption	[2] Adult Goods	[3] Extended Engel	[4] Blackorby/ Donaldson
Custodial Parent: $20,000 Non-Custodial Parent: $20,000				
A] Income share	122(7.3)	303(18.2)	138(8.3)	308(18.5)
B] Inc with R	122(7.3)	303(18.2)	138(8.3)	308(18.5)
C] Delaware Mel	352(21.1)	388(23.3)	348(20.9)	447(26.8)
D] Flat Percent	172(10.3)	239(14.3)	164(9.8)	350(21.0)
E] Perc with R	118(7.1)	164(9.8)	112(6.7)	240(14.4)
F] Australian	118(7.1)	164(9.8)	112(6.7)	240(14.4)
G] *Inc Equal	555(33.3)	833(50.0)	555(33.3)	333(20.0)
Custodial Parent: $20,000 Non-Custodial Parent: $50,000				
A] Income share	305(7.3)	583(14.0)	347(8.3)	770(18.5)
B] Inc with R	325(7.8)	622(14.9)	370(8.9)	820(19.7)
C] Delaware Mel	734(17.6)	863(20.7)	717(17.2)	1,081(25.9)
D] Flat Percent	431(10.3)	597(14.3)	410(9.8)	877(21.0)
E] Perc with R	377(9.0)	522(12.5)	358(8.6)	767(18.4)
F] Australian	377(9.0)	522(12.5)	358(8.6)	767(18.4)
G] *Inc Equal	2,222(53.3)	2,083(50.0)	1,666(40.0)	1,333(32.0)
Custodial Parent: $50,000 Non-Custodial Parent: $20,000				
A] Income share	122(7.3)	233(14.0)	138(8.3)	308(18.5)
B] Inc with R	102(6.1)	195(11.7)	116(7.0)	257(15.4)
C] Delaware Mel	230(13.8)	271(16.3)	225(13.5)	339(20.3)
D] Flat Percent	172(10.3)	239(14.3)	164(9.8)	350(21.0)
E] Perc with R	118(7.1)	164(9.8)	112(6.7)	240(14.4)
F] Australian	0(0.0)	0(0.0)	0(0.0)	0(0.0)
G] *Inc Equal	0(0.0)	833(50.0)	277(16.6)	0(0.0)
Custodial Parent: $40,000 Non-Custodial Parent: $40,000				
A] Income share	244(7.3)	438(13.1)	290(8.7)	663(19.9)
B] Inc with R	244(7.3)	438(13.1)	290(8.7)	663(19.9)
C] Delaware Mel	525(15.8)	627(18.8)	512(15.4)	798(23.9)
D] Flat Percent	345(10.4)	478(14.3)	328(9.8)	701(21.0)
E] Perc with R	290(8.7)	403(12.1)	276(8.3)	591(17.7)
F] Australian	233(7.0)	324(9.7)	222(6.7)	475(14.3)
G] *Inc Equal	1,111(33.3)	1,666(50.0)	1,111(33.3)	666(20.0)
Custodial Parent: $30,000 Non-Custodial Parent: $70,000				
A] Income share	426(7.3)	691(11.8)	508(8.7)	1,160(19.9)
B] Inc with R	444(7.6)	719(12.3)	529(9.1)	1,208(20.7)
C] Delaware Mel	891(15.3)	1,088(18.7)	866(14.8)	1,419(24.3)
D] Flat Percent	603(10.3)	836(14.3)	574(9.8)	1,228(21.1)
E] Perc with R	549(9.4)	761(13.0)	523(9.0)	1,117(19.1)
F] Australian	578(9.9)	802(13.7)	550(9.4)	1,177(20.2)
G] *Inc Equal	3,055(52.4)	2,916(50.0)	2,314(39.7)	1,833(31.4)
Custodial Parent: $70,000 Non-Custodial Parent: $30,000				
A] Income share	182(7.3)	296(11.8)	217(8.7)	497(19.9)
B] Inc with R	165(6.6)	267(10.7)	197(7.9)	449(18.0)
C] Delaware Mel	331(13.2)	405(16.2)	322(12.9)	528(21.1)
D] Flat Percent	258(10.3)	358(14.3)	246(9.8)	526(21.0)
E] Perc with R	204(8.2)	283(11.3)	194(7.8)	416(16.6)
F] Australian	0(0.0)	0(0.0)	0(0.0)	0(0.0)
G] *Inc Equal	0(0.0)	1,250(50.0)	462(18.5)	0(0.0)

* For income equalization guideline, the values in the 4 columns are for: (1) 1 adult; (2) 2 adults; (3) 2 adults, 1 child; (4) 2 adults, 2 children

{III} FOR THREE CHILDREN AGED 13-17 7-12 0-6

ECONOMIC MODEL >>>	[1]	[2]	[3]	[4]
GUIDELINE	Consumption	Adult Goods	Extended Engel	Blackorby/ Donaldson
Custodial Parent: $20,000 Non-Custodial Parent: $20,000				
A] Income share	294(17.6)	391(23.5)	198(11.9)	409(24.5)
B] Inc with R	294(17.6)	391(23.5)	198(11.9)	409(24.5)
C] Delaware Mel	500(30.0)	526(31.6)	484(29.0)	585(35.1)
D] Flat Percent	238(14.3)	296(17.8)	204(12.2)	429(25.7)
E] Perc with R	163(9.8)	203(12.2)	140(8.4)	294(17.6)
F] Australian	163(9.8)	203(12.2)	140(8.4)	294(17.6)
G] *Inc Equal	714(42.8)	1,111(66.7)	833(50.0)	606(36.4)
Custodial Parent: $20,000 Non-Custodial Parent: $50,000				
A] Income share	664(15.9)	752(18.0)	495(11.9)	1,023(24.6)
B] Inc with R	708(17.0)	801(19.2)	528(12.7)	1,091(26.2)
C] Delaware Mel	1,033(24.8)	1,139(27.3)	972(23.3)	1,381(33.1)
D] Flat Percent	596(14.3)	741(17.8)	512(12.3)	1,072(25.7)
E] Perc with R	521(12.5)	647(15.5)	447(10.7)	938(22.5)
F] Australian	521(12.5)	647(15.5)	447(10.7)	938(22.5)
G] *Inc Equal	2,500(60.0)	2,500(60.0)	2,083(50.0)	1,742(41.8)
Custodial Parent: $50,000 Non-Custodial Parent: $20,000				
A] Income share	265(15.9)	300(18.0)	198(11.9)	409(24.5)
B] Inc with R	222(13.3)	251(15.1)	165(9.9)	342(20.5)
C] Delaware Mel	324(19.4)	357(21.4)	305(18.3)	433(26.0)
D] Flat Percent	238(14.3)	296(17.8)	204(12.2)	429(25.7)
E] Perc with R	163(9.8)	203(12.2)	140(8.4)	294(17.6)
F] Australian	3(0.2)	3(0.2)	2(0.1)	5(0.3)
G] *Inc Equal	0(0.0)	1,388(83.3)	833(50.0)	378(22.7)
Custodial Parent: $40,000 Non-Custodial Parent: $40,000				
A] Income share	522(15.7)	565(17.0)	414(12.4)	877(26.3)
B] Inc with R	522(15.7)	565(17.0)	414(12.4)	877(26.3)
C] Delaware Mel	738(22.1)	822(24.7)	689(20.7)	1,014(30.4)
D] Flat Percent	477(14.3)	592(17.8)	409(12.3)	858(25.7)
E] Perc with R	402(12.1)	499(15.0)	345(10.4)	723(21.7)
F] Australian	361(10.8)	448(13.4)	309(9.3)	649(19.5)
G] *Inc Equal	1,428(42.8)	2,222(66.7)	1,666(50.0)	1,212(36.4)
Custodial Parent: $30,000 Non-Custodial Parent: $70,000				
A] Income share	890(15.3)	890(15.3)	725(12.4)	1,536(26.3)
B] Inc with R	927(15.9)	927(15.9)	755(12.9)	1,599(27.4)
C] Delaware Mel	1,250(21.4)	1,414(24.2)	1,154(19.8)	1,791(30.7)
D] Flat Percent	835(14.3)	1,037(17.8)	717(12.3)	1,501(25.7)
E] Perc with R	760(13.0)	944(16.2)	652(11.2)	1,367(23.4)
F] Australian	838(14.4)	1,041(17.8)	719(12.3)	1,507(25.8)
G] *Inc Equal	3,452(59.2)	3,518(60.3)	2,916(50.0)	2,424(41.6)
Custodial Parent: $70,000 Non-Custodial Parent: $30,000				
A] Income share	381(15.2)	381(15.2)	310(12.4)	658(26.3)
B] Inc with R	345(13.8)	345(13.8)	281(11.2)	595(23.8)
C] Delaware Mel	465(18.6)	526(21.0)	429(17.2)	667(26.7)
D] Flat Percent	358(14.3)	444(17.8)	307(12.3)	643(25.7)
E] Perc with R	283(11.3)	351(14.0)	243(9.7)	508(20.3)
F] Australian	0(0.0)	0(0.0)	0(0.0)	0(0.0)
G] *Inc Equal	119(4.8)	2,037(81.5)	1,250(50.0)	606(24.2)

* For income equalization guideline, the values in the 4 columns are for: (1) 1 adult; (2) 2 adults; (3) 2 adults, 1 child; (4) 2 adults, 2 children

{IV} FOR FOUR CHILDREN AGED 13-17 7-12 7-12 0-6

ECONOMIC MODEL >>> GUIDELINE	[1] Consumption	[2] Adult Goods	[3] Extended Engel	[4] Blackorby/ Donaldson
Custodial Parent: $20,000 Non-Custodial Parent: $20,000				
A] Income share	348(20.9)	449(26.9)	234(14.0)	470(28.2)
B] Inc with R	348(20.9)	449(26.9)	234(14.0)	470(28.2)
C] Delaware Mel	634(38.0)	649(38.9)	613(36.8)	706(42.4)
D] Flat Percent	299(17.9)	340(20.4)	243(14.6)	492(29.5)
E] Perc with R	205(12.3)	233(14.0)	166(10.0)	337(20.2)
F] Australian	205(12.3)	233(14.0)	166(10.0)	337(20.2)
G] *Inc Equal	833(50.0)	1,333(80.0)	1,060(63.6)	833(50.0)
Custodial Parent: $20,000 Non-Custodial Parent: $50,000				
A] Income share	777(18.6)	863(20.7)	586(14.1)	1,176(28.2)
B] Inc with R	828(19.9)	920(22.1)	625(15.0)	1,253(30.1)
C] Delaware Mel	1,307(31.4)	1,377(33.0)	1,211(29.1)	1,637(39.3)
D] Flat Percent	748(18.0)	850(20.4)	607(14.6)	1,230(29.5)
E] Perc with R	654(15.7)	743(17.8)	531(12.7)	1,075(25.8)
F] Australian	654(15.7)	743(17.8)	531(12.7)	1,075(25.8)
G] *Inc Equal	2,708(65.0)	2,833(68.0)	2,424(58.2)	2,083(50.0)
Custodial Parent: $50,000 Non-Custodial Parent: $20,000				
A] Income share	311(18.7)	345(20.7)	234(14.0)	470(28.2)
B] Inc with R	260(15.6)	288(17.3)	196(11.8)	393(23.6)
C] Delaware Mel	410(24.6)	432(25.9)	380(22.8)	513(30.8)
D] Flat Percent	299(17.9)	340(20.4)	243(14.6)	492(29.5)
E] Perc with R	205(12.3)	233(14.0)	166(10.0)	337(20.2)
F] Australian	50(3.0)	57(3.4)	41(2.5)	83(5.0)
G] *Inc Equal	208(12.5)	1,833(110)	1,287(77.2)	833(50.0)
Custodial Parent: $40,000 Non-Custodial Parent: $40,000				
A] Income share	609(18.3)	648(19.4)	490(14.7)	1,002(30.1)
B] Inc with R	609(18.3)	648(19.4)	490(14.7)	1,002(30.1)
C] Delaware Mel	933(28.0)	990(29.7)	856(25.7)	1,198(35.9)
D] Flat Percent	598(17.9)	680(20.4)	486(14.6)	984(29.5)
E] Perc with R	504(15.1)	573(17.2)	409(12.3)	829(24.9)
F] Australian	499(15.0)	567(17.0)	405(12.2)	821(24.6)
G] *Inc Equal	1,666(50.0)	2,666(80.0)	2,121(63.6)	1,666(50.0)
Custodial Parent: $30,000 Non-Custodial Parent: $70,000				
A] Income share	1,036(17.8)	1,022(17.5)	858(14.7)	1,753(30.1)
B] Inc with R	1,079(18.5)	1,064(18.2)	894(15.3)	1,825(31.3)
C] Delaware Mel	1,579(27.1)	1,690(29.0)	1,425(24.4)	2,105(36.1)
D] Flat Percent	1,047(17.9)	1,190(20.4)	850(14.6)	1,722(29.5)
E] Perc with R	953(16.3)	1,083(18.6)	774(13.3)	1,567(26.9)
F] Australian	1,098(18.8)	1,248(21.4)	891(15.3)	1,805(30.9)
G] *Inc Equal	3,750(64.3)	4,000(68.6)	3,409(58.4)	2,916(50.0)
Custodial Parent: $70,000 Non-Custodial Parent: $30,000				
A] Income share	444(17.8)	438(17.5)	368(14.7)	751(30.0)
B] Inc with R	401(16.0)	396(15.8)	332(13.3)	679(27.2)
C] Delaware Mel	587(23.5)	629(25.2)	530(21.2)	783(31.3)
D] Flat Percent	448(17.9)	510(20.4)	364(14.6)	738(29.5)
E] Perc with R	354(14.2)	403(16.1)	288(11.5)	583(23.3)
F] Australian	0(0.0)	0(0.0)	0(0.0)	0(0.0)
G] *Inc Equal	416(16.6)	2,666(107)	1,893(75.7)	1,250(50.0)

* For income equalization guideline, the values in the 4 columns are for: (1) 1 adult; (2) 2 adults; (3) 2 adults, 1 child; (4) 2 adults, 2 children